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PARAFFIN, COSMOLINE AND VASELINE.

By A. W. Miller, M. D., Ph. D.

(Read at the Pharmaceutical Meeting, December 16.)

In the course of my recent inquiries concerning cosmoline,* I ascertained incidentally that the manufacture and purification of paraffin is carried on in quite an extensive manner in our city. It occurred to me therefore that a few notes on this subject might prove to be acceptable.

The establishments engaged in this industry are mostly situated on the Eastern banks of the Schuylkill, in the neighborhood of Gray's Ferry Arsenal. The process begins by subjecting the so-called residuum of the coal oil refiners to distillation in large stills, made of five-eighths inch boiler iron, having a capacity of about 1500 to 2500 gallons. Direct heat is applied immediately beneath the stills, the bottoms of which toward the end of the process reach a white heat. The distillate is condensed in a system of iron pipes, which are contained in large wooden tanks. Distillation begins at 220°, and is terminated at about 570°. The product is a thick, unctuous mass at ordinary temperatures, but it liquefies at about 100°, or a little over. It has the peculiar iridescent color and the characteristic odor of petroleum. The residue of the distillation is a hard, porous, black mass, which is free from odor and presents a close analogy to the ordinary coke of the gas works. In the yards referred to, it is in fact called coke, and is used as fuel to heat the stills.

The distillate, which has thus been obtained, is next treated with from four to five per centum of sulphuric acid, to *kill the green*, as it

* See December number, page 534.

is termed by the workmen. After the removal of the acid by carbonate of sodium, the oily mass is introduced into bags, made of the material called duck, each of which holds about three or four gallons. A number of these are then placed horizontally in an ordinary screw press, being superimposed on each other and separated by intervening boards. During the summer, it is necessary to use ice in order to lower the temperature and prevent too much loss of paraffin.

The oil expressed during this process has the gravity of 25°; it is known as heavy paraffin oil, and is an excellent lubricator for cylinders. It can be readily deodorized and also freed from unpleasant taste, so that it may represent the softer variety of the so-called cosmoline.

The crude paraffin, when taken from the presses, is melted and run into moulds. It is now of a light yellowish or straw color, rather soft, and still strongly redolent of petroleum. In this state it is sold to the refiners, who further purify it, in order to adapt it to the multitudinous purposes to which modern industry applies this valuable inheritance of prehistoric ages.

The refiners subject the crude article, which they designate as *wax*, to powerful hydraulic pressure, and thus obtain therefrom a second variety of paraffin oil of about 28° gravity. This is also used almost exclusively as a lubricator. The residue is further purified by treating it with a variety of gasolin or benzin of definite density, which is specially prepared for this purpose. Steam is also called into requisition in order to completely deodorize the product.

Two varieties of pure, white paraffin are manufactured, namely, the ordinary hard article having an apparently crystalline structure, and another having a softer and more gelatinous consistence, which is termed *gum stock*, and is chiefly consumed for chewing-gum. Some of the refiners consider these two products as separate and distinct bodies, and state that they cannot convert either of them into the other. One single refining establishment in this city is reported to find a market for an average production of these substances to the extent of 10,000 lbs. per month.

Among the more important applications of paraffin in our neighborhood may be enumerated its use for laundry purposes; when added to starch, it imparts to it an additional lustre in the same manner as spermaceti or white wax. It has been found to be an effective preservative of wood, and large quantities are consumed in this industry.

Chewing gum, as has been already stated, is the softer variety of paraffin; although this is apparently a very trivial and non-important article, it is in reality sold in enormous amounts by many of the wholesale confectioners. The manufacturers of friction matches are heavy purchasers of paraffin, which they use for impregnating the sticks, so that they will more readily ignite, and burn with greater uniformity. Of late, paraffin is also beginning to be used extensively for the purpose of sizing various textile fabrics. Paraffin or ozokerite candles are well known, and they are confidently asserted to produce a finer light than any other variety. Confectioners also use paraffin to impart a gloss or lustre to some of their bon-bons, such as cream chocolate drops and others.

In Europe, paraffin has in addition been used for water-proofing various woven goods, for coating the interior of wine and beer barrels, for the preservation of fresco paintings, for the purpose of saturating cork and paper, as a sizing or finish for leather and small articles turned from wood and bone, as a preservative of fruits and for many other similar applications.

Returning to my remarks on cosmoline at the last meeting, I would state that I have since then succeeded in obtaining several petroleum products, which furnish a more satisfactory result than the mixture of neutral oil and crystallized paraffin. The defect of this preparation is that it cannot be readily deodorized, and that it is of a somewhat granular consistence, instead of being perfectly smooth and homogeneous like cosmoline. I present herewith a sample of a very heavy, gelatinous paraffin oil, of which I have good reasons for believing to be the identical source from which at least one variety of cosmoline is manufactured.

In devising a process for the purification of this oil, I endeavored to imitate the method by the action of steam, which was alluded to in my former paper. About one ounce of the oil was therefore placed in a shallow dish with a quart of water and boiled for four hours, more water being added from time to time as it evaporated. The oil naturally spread itself in a thin sheet over the surface of the water, so that all the vapor was forced to pass through it, carrying along with it the small remnant of light hydro-carbons, on which the disagreeable odor depends. At the expiration of this time, the oil was found to be tasteless and inodorous. It was then further purified by filtering through prepared animal charcoal, being kept liquid by being placed

near to a hot stove. On a larger scale, a hot water bath would of course be much preferable, particularly as the slightest excess of heat seems to redevelope a coal oil odor. A portion of the color and all the adhering mechanical impurities were thus removed. The paraffin ointment, which is so obtained, resembles cosmoline very closely indeed, having a similar color, consistence and melting point, being quite inodorous and perfectly bland to the taste.

The preparation of the animal charcoal consisted in washing it with a five per cent. solution of carbonate of sodium, warming it repeatedly with a large excess of hydrochloric acid, and then percolating with water until all the acid was removed. When dried it was found to be reduced to one-fifth of the original weight.

The above process can also be applied to the paraffin oil of 25° gravity, which is obtained in the first expression of the crude distillate. The melting point of this oil may be altered to almost any desirable point, by adding to it some of the gum stock or softer variety of paraffin, which is preferable to the hard on account of remaining homogeneous.

The attention of the last meeting was directed by Mr. Shinn to another similar preparation, euphoniously called *Vaseline.* Although I have so far had no opportunity of examining this "Essence of Petroleum," I infer from the contents of a letter in my possession, that paraffin ointment may also be safely substituted for it. Mr. Robert A. Cheesebrough, the inventor and patentee of vaseline, advises me as follows: "The article called cosmoline is an infringement of our patents, and its manufacture or *sale* renders the parties making or selling, liable to us for damages." Such being the case, we, as good, law-abiding citizens, are furnished with an additional reason for refusing to dispense cosmoline, and for recommending paraffin ointment in place of it.

I would state in this connection that I have remitted to the Commissioner of Patents the necessary fee for obtaining a copy of Mr. Cheesebrough's patent. Still, I feel firmly convinced that the assertion contained in an advertisement of vaseline, which was transmitted to me, is literally true, namely, that "There is no wonderful ingredient in it known to no one but the proprietor. It is simply—Petroleum."

PURIFICATION OF CRAB ORCHARD SALT.

By Richard V. Mattison.

Read at the Pharmaceutical Meeting, December 16.

Among the purgative medicines used in various sections of this country, none are more rapidly finding favor among physicians and the general public than the salt obtained by evaporating the waters of the springs at Crab Orchard, Lincoln county, Kentucky.

As the salt appears in our market it is of various degrees of color and purity. It is usually prepared by concentrating the water in iron kettles and then allowing the concentrated water to stand at rest until the largest portion of the organic matter is precipitated. The supernatant liquid is then decanted, more or less care being used, and evaporated. The yield is about 1 to 1.25 per cent., ten gallons of the water yielding about a pound of the commercial salt. Much more care was formerly used in the preparation of this salt than now, and of late years the salt has gradually grown more and more impure, owing to the ready sale found for it, which fact was noticed in a letter from the proprietors a short time ago, in which they remarked "that the supply was not equal to the demand."

When dissolved in water the solution of the commercial salt presents a very unsatisfactory appearance, and is certainly very far from being inviting as a medicine. This should be remedied; in fact, Crab Orchard salt should never be dispensed without first being *purified*, which is easily done by the following process (which I think should be performed at the spring, before the salt is ever offered to the market.) Dissolve the salt in boiling water and filter through paper, or, on a large scale, flannel bags are best. The filtrate is then evaporated carefully to dryness, stirring meanwhile to favor granulation and prevent caking. If the directions are carefully followed, the product will be a beautiful snow-white salt, perfectly soluble in water; one which the pharmacist can recommend and dispense with satisfaction: more active than the ordinary salt, as it is free from the insoluble earthy admixtures of alumina, calcium sulphate, etc. The purified salt usually contains much less water than the commercial, which varies very much, the amount ranging from 35 to 50 per cent., the mean being usually about 40 per cent. The active ingredients seem to be principally magnesium and sodium sulphates, also a considerable proportion of potassium sulphate, with sodic and lithic

chlorides. A small amount of ferric oxide is left in the filter, but the amount is so small that I think it of little consequence that the purified salt does not contain it.

Large quantities of a spurious salt are prepared by a house on one of the principal streets of Louisville, but with such secresy that stores only a few squares distant sell the salt without a doubt of its genuineness. It seems to be principally magnesium sulphate, with a small proportion of ferric sulphate.

After considerable experience in purifying Crab Orchard salt, I may state that the usual amount of organic matter in the salt is from 3 to 12 per cent. From 20 to 35 per cent. of loss is sustained in the purification, the greater portion of the loss being water. This loss need not be met with by pharmacists generally, a partially anhydrous salt being desired by myself for the production of an *active* granular effervescent salt. I would commend to all the advantage of preparing the purified salt themselves, the preparation of a few pounds being a matter of little trouble, and yielding a fair remuneration by the satisfaction accorded and increase of sale.

Philadelphia, 12*th mo.* 13, 1873.

SYRUP OF IODIDE OF IRON AND MANGANESE.

By J. U. Lloyd.

I find that syrup of iodide of iron and manganese, as prepared by the published process, viz: double decomposition between the mixed sulphates of iron and manganese with iodide of potassium, is objectionable, inasmuch as the preparation so obtained will contain, if the precipitated magma of sulphate of potash is well washed, an appreciable amount of this salt, which, after a time, crystallizes in a minute form throughout the syrup, imparting to it a milky turbidity, and if the said sulphote of potash be *not* completely washed, the resulting syrup will be deficient in strength.

In the process above referred to (U. S. Dispensatory and Parrish's Pharmacy), a large amount of the objectionable sulphate of potash is obtained so that I find it almost impossible to properly manipulate the syrup without meeting with the above-named difficulty, and to overcome this fault I prepared the following formula, and have for a

number of years followed it in making this preparation, with perfec satisfaction.

Sulphate of manganese, . .	240 grs.
Iodide of potassium, . .	288 "
Iodine, ...	744 "
Iron Wire (small), . .	240 "
Sugar, ...	17 oz. av.
Distilled water, q. s.	

Place the iodine, three ounces of distilled water, and the iron wire cut into small pieces, in a thin glass flask or a porcelain dish, shake or stir occasionally until the reaction ceases, and the solution has acquired a clear greenish color, without a tinge of yellow. Having introduced the sugar into a porcelain dish, filter the solution of iodide of iron upon it. Wash the filter by pouring into it two ounces of distilled water, allowing the same to filter into the sugar. Dissolve the sulphate of manganese and iodide of potassium separately in one-half an ounce of cold distilled water by trituration in a mortar; mix the two solutions together and allow the sulphate of potash to precipitate, then carefully remove the mixture into a moistened filter-paper within a glass funnel, and allow the solution of iodide of manganese to filter upon the sugar. When well drained wash the precipitate within the funnel with one-half an ounce of cold distilled water, allowing it to filter into the sugar.

Finally, finish the operation by adding to the above enough distilled water to make the whole measure twenty fluid ounces; stir occasionally until dissolved, and filter.

Cincinnati, Dec. 8, 1873.

FLUID EXTRACT OF SUMACH BERRIES.

By Joseph P. Remington.

Read before the Pharmaceutical Meeting, Dec. 16, 1873.

In some sections of this city, this valuable preparation is duly appreciated, being largely prescribed as an ingredient in mouth washes and gargles, where the astringent and pleasantly acid properties of sumach berries would be indicated.

Not having a satisfactory formula for the preparation of the fluid extract, it occurred to the writer to try the Pharmacopœia process for the astringent fluid extracts, and the result you have before you, a

rich, bright red liquid, possessing the virtues of the berries in a marked degree. The glycerin is a good solvent for the tannic acid, and the malic acid present rapidly dissolves in the menstruum.

The formula is as follows:

Take of sumach berries in moderately fine powder sixteen troy ounces.

Glycerin, four fluid-ounces.

Alcohol, Water, } each a sufficient quantity.

Mix half a pint of alcohol, three fluid-ounces glycerin and five fluid-ounces of water, and, having moistened the sumach with four fluid-ounces of the mixture, pack in a suitable percolator (Squibb's new percolator answers very well), pour on top the remaining portion of the sixteen fluid-ounces of menstruum; close the percolator and allow the powder to macerate for four days; then open the percolator and continue the percolation until twenty-four fluid-ounces have been obtained. Of these, reserve the first fourteen fluid-ounces, and evaporate the remainder to two fluid-ounces, mix with the reserved portion and filter, if necessary.

Like many other fluid extracts containing glycerin, a slight precipitation of coloring and extractive matter takes place when diluted with water. If considered desirable, the precipitation may be mixed with an equal quantity of water, and re-evaporated at a low temperature; but, as probably all of the prescriptions into which it would enter would require filtration, it is unnecessary.

A very good gargle and mouth wash may be made by taking—

Fld. ext. rhus glab., . .	f ʒiv.
Potass. chlorate, . .	ʒij.
Glycerin, pure, . . .	ʒiv.
Water, . . .	℥vij.

Filter.

CACAO-CREAM.

By T. S. Glenn.

Almost every apothecary has more or less demand for a preparation of this kind, and many may wish to include some appliance of this character among their specialties.

Having what I consider a most excellent formula for such a pre-

paration, I here offer it for the benefit of those who have not already a better one.

℞	Oleum theobromæ, . .	℥xvi.
	" ricini, . .	℥xcvi.
	" bergamii. . .	ʒvi.
	" limonis, . .	℥iss.
	" citronellæ, . .	ʒiss.
	" lavandulæ, .	ʒiv.
	Spts. coloniensis, 95 per cent.,	℥lxiv.

Melt the oil of theobroma, warm the castor oil and mix. Dissolve the essential oils in the cologne spirit. Fill the bottles two-thirds full with the first mixture, and fill balance of bottle with the perfumed spirit.

This forms an elegant mixture for dressing the hair, and is quite popular with many. In very cold weather it becomes quite hard, but a little heat soon renders it fluid.

St. Louis, Mo., Dec. 20, 1873.

BENZOINATED OINTMENT OF OXIDE OF ZINC.

By Oliver Jester.

This ointment is one of the most popular productions of the apothecary, and regarded as a valuable remedy by the medical profession generally; yet there appears to be some little controversy as to its merits, which probably arises from certain irritating properties it is said to possess. Now this objection may be ascribed to impurities, or an improperly prepared ointment, either of which might aggravate instead of allay. Various modes for its preparation having been published, I also submit a process which gives satisfaction, although not strictly pharmaceutical.

Take of

Adeps, ...	30 troy ounces,
Oxide of Zinc, ...	5 troy ounces,
Tinct. Benzoin (4 oz. to pint), . .	5 fluid drachms.

Thoroughly incorporate the tincture with the lard in a porcelain vessel and set aside. On a piece of brown paper with a rough surface, reduce the oxide with a spatula, until it passes through a No. 60 sieve and set aside. Heat the lard to the boiling point and strain. Add the oxide and stir until cold.

Although the process of heating to the boiling point is followed b a deposit of the resin, the alcohol is also dissipated. And while i still retains sufficient fragrance of the former to prevent rancidity the necessity of the absence of the latter is obvious.

The effects following its application is all that can be desired And I have to hear the first fault, after dispensing it three years i various affections.

Philadelphia, December 18th, 1873.

DISPENSING POISONS.

By Benjamin Lillard, Phar. D.

The accurate dispensing of poisons is of the greatest importanc to the profession and the public; and at different times, various sug gestions of more or less practical value, for the accomplishment o that object have been made; among which may be mentioned label of unusual designs and colors or with sanded edges, and bottles o fancy colors and shapes or with rough edges or places. These, how ever, are intended more to prevent errors in administering than i dispensing. The practice of dispensing poisons when ordered by physician, in any unusual way, to prevent improper administration should not be adopted without the advice or consent of the physician We have a right to suppose the physician has given all the necessar precautions. However, when he has omitted the dose or direction for use, it is well to cautiously inquire how it is to be used, and, i necessary, say a word about diluting.

The principal duty of the pharmacist should be to use all the pre cautions he can to prevent errors in dispensing. The plan I hav adopted, although not entirely original or new, yet probably possesse some features not generally known. All poisonous drugs or compound are kept in a separate closet under lock and key, and taken out onl under the following

Rules for Dispensing Poisons.

First. Each and every dispensing, for any purpose whatever, mus be entered by the dispenser and witnessed.

Second. The witness must examine the package containing th poison, see that it is the one wanted, and that the correct quantity i taken out; and place the package back in the poison case.

Third. The witness must examine the prescription, order or perso

wanting the poison, and see that they get the kind and quantity wanted.

Fourth. If the poison is to be mixed, compounded, or divided in any way, the witness must examine the order or prescription and the finished preparation, to see that it is properly compounded. And when there is no written order or prescription, the person ordering should write down what he wants; such orders to be retained, numbered and filed the same as a prescription.

Fifth. The witness shall examine the entry in the register, see that it is right, and sign his name in the proper place.

The register contains columns for "date, name of article, who for, residence. who by, quantity, price, sold by, witnessed by, remarks;" under the heading 'remarks,' if the poison was for a prescription or order, we enter the number of the prescription on file of that date.

I have had this plan in operation some time and find that it works well. And although it may be difficult to carry out all its provisions strictly in every case, my plan under such circumstances, is to conform as nearly as possible to the intention or spirit of them.

Poisons like arsenic, morphia, and laudanum, when sold in an uncombined state, should be labelled with some of the usual poison signs, and with the name of the antidote and directions for use, so as to be convenient in case of accident; for instance, on every package of morphia or laudanum sent out, we have conspicuous on the label, "morphia and laudanum are dangerous poisons, and should be administered only as ordered by a physician and with great care. In case of an overdose, give powdered mustard mixed with warm water, until copious vomiting is produced, and send at once for a physician."

The plan that is sometimes adopted, of substituting some harmless drug of similar appearance, for the poison wanted when we have reason to believe it would be improperly used, has, by delaying or preventing its sale at other places, frequently been the means of preventing persons from doing what they might afterwards regret.

Nashville, November, 1873.

SYRUP OF WILD CHERRY.

Editor American Journal of Pharmacy:

Dear Sir:—The following formula for syrup of wild cherry, I offer as an improvement on the one directed in the Pharmacopœia:—

Take of

Wild cherry bark, in moderately fine powder, . . ℥v,
Sugar, granulated. . . . . ℥xx,
Glycerin, ... f℥ij,
Water a sufficient quantity.

Mix half a pint of water with one fluid-ounce of glycerin, moisten the powder with one-half of the menstruum, pack it firmly in a glass percolator, cover it with a disc of filtering paper, pour on the remaining menstruum, and covering it closely, allow it to stand for 48 hours; add the remainder of the glycerin and water and percolate twelve fluid-ounces; set aside; continue the percolation with water until exhausted; evaporate* this to four fluid-ounces, and add to the first obtained percolate; add the sugar to the liquid agitating it until dissolved.

Charles Schnabel.

Philadelphia, Twelfth month 7th, 1873.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Preservation of Vegetable Powders.—Mr. L. Créteur reports on the method for the preservation of vegetable powders, proposed by Louis Cornélis, pharmacist at Diest, and which consists essentially in keeping the powders dry by means of burned lime. This is effected by means of glass bottles, into the wide mouths of which hollow pear-shaped stoppers are fitted, having below a large opening, which gradually becomes smaller, and on the outside a thread-like groove for fastening the paper and linen. The cavity of the stopper is filled with pieces of burned lime, and double thicknesses of filtering paper and linen are tied over it, after which the stopper is inserted.† The author has had powdered rue, preserved in this manner, in his possession for four years, during which time it preserved its color and odor perfectly.—*Bull. Soc. Roy. Phar. de Brux.*, 1873, November.

*It appears to us that this syrup is intended to represent principally the sedative properties of wild cherry bark, and that for this reason, evaporation of any portion of the percolate should be avoided. If an uniform and fine powder of the bark is used and its percolation is properly managed, evaporation will not be necessary.—Editor.

† This is an improvement of Mohr's method for the preservation of vegetable drugs, which are kept in the drawers upon a perforated tin box containing burned lime.—Editor Am. Journ. Phar.

Iodide of Calcium.—Ch. Méniere recommends to prepare it from sulphuret of calcium, because the other metallic oxides are then effectually removed; some iodate of calcium which is likewise formed, has to be deoxidized by calcining the saline mass with a little charcoal; the residue should then be dissolved in 95 per cent. alcohol, when the pure iodide will be obtained.

During the siege of Paris, iodide of calcium was usually found to be fraudulently mixed with iodide of potassium. The author calls attention to the presence of sometimes considerable quantities of lime in the commercial iodide of calcium,* added for the purpose of obtaining a white salt.—*Ibid.*

Influence of Camphor and Oil of Turpentine upon Vegetable Life.—Since Barton's experiments in 1798, no further investigations appear to have been made with camphor and plants. The results recently obtained by Dr. L. Raab and Aug. Vogel, modify, to some extent, Barton's views: while camphor stimulates the vital functions of some plants, it is without influence upon others, and acts even injuriously upon some. The most beneficial influence was observed upon germination, which, almost without exception, is either hastened. or, if partly lost, restored.

Water containing oil of turpentine has a similar stimulating action upon germinating plants, but when further advanced, it becomes decidedly hurtful.—*Buchner's N. Repert.*, 1872. 545.

So-called Antimonic Blue.†—C. Kraus has proved that this new pigment is a compound of cyanogen and iron, and that antimony is not necessary for its formation; it is obtained by boiling ferrocyanide of potassium in muriatic acid, hydrocyanic acid gas being copiously evolved, and the production of the pigment is hastened not only by metallic antimony, but also by antimonic chloride and by solutions of mercury. When first produced, the color of the precipitate is often green, but on exposure to the air it invariably changes to blue.‡—*Ibid*, 548—551.

* We have also met with *bromide of calcium* which had been whitened by the addition of lime; a basic salt of a strong alkaline reaction is formed, and this is readily obtained very white. Iodide and chloride of calcium are similar in their behavior towards lime.—Editor.

† See American Journal of Pharmacy, 1872, p. 301.

‡ This pigment appears to be closely allied to if not identical with the compound formed by the officinal process for hydrocyanic acid.

New Reagent for Binoxide of Hydrogen.—The Polytechn. Notizblatt recommends a solution of nitrate of argent-ammonium, which must be free from every trace of free ammonia; a few drops added to water containing the binoxide in solution, produces on boiling a turbidity in consequence of the separation of minutely divided metallic silver.—*Pharm. Centralhalle*, 1873, No. 47.

BOTANICAL ORIGIN OF THE BALSAMS OF TOLU AND PERU.*

By Professor Baillon.

The plant which yields the balsam of tolu, and which, during the present century, has been described under the name of *Myroxylon toluiferum*, was named by Linnæus, in his "Materia Medica," *Toluifera balsamum*, and that name should still be retained for it. The younger Linnæus thought that the balsam of Peru was the product of another leguminous plant of the same genus, which he had received from Mutis, and which he named *M. peruiferum*. This was an error, since the pretended balsam of Peru did not even come from South America, but from the *Costa del Balsamo*, or Balsam Coast, in San Salvador. The tree which produces the greater part of this San Salvador balsam is that which Klotzsch, multiplying beyond measure the species of the genus, designated under the name of *M. Pereiræ*, but which cannot be separated specifically from *Toluifera balsamum* (*M. toluiferum*). Here, as in the entire genus, characters taken from the form, size and proportions of parts of the fruit,—especially of the wing at its base, which varies infinitely in size and direction in one and the same plant,—cannot be held sufficient for the separation of species. The elongated, or more or less punctiform pellucid spots of the leaflets, do not appear as though they ought to be considered to have specific value; hence the slight value of *M. punctatum*.

The different qualities and characters of the balsams seem to depend entirely upon the method of extraction. But all the forms of *T. balsamum* have one constant character in the smooth surface of the seeds, which arises from the fact that the cotyledons are not ruminated. On the contrary, in *M. peruiferum*, which should take the name of *Toluifera peruifera*, they are ruminated. The latter tree yields scarcely any useful products, or at least any sent as such to

* Note read before the Congress at Lyons (*Répertoire de Pharmacie* [N. S., ... 566] from the *Revue Scientifique*.

Europe. The balsamic substance is present, however, on the surface of the seed, as in *T. balsamum*, but in less quantity, and it is sunk into the crevices of the seminal envelope, instead of being deposited in a smooth layer. This is the sole difference between the two species of the genus *Toluifera* —*Pharm. Journ.*, *Nov.* 15. 1873.

DETECTION OF DIGITALIN AND ATROPIA.

By H. Brunner.

The detection of digitalin in toxicological researches is very difficult. By employing the method of Stas-Otto, the greater part of this glucoside is obtained from the acid ethereal solution as a resinous body, which in most cases does not give the characteristic red color with sulphuric acid and bromine-water. The smaller portion which is found in the alkaline-ethereal solution, cannot be distinguished from delphinia and aconitia, because delphinia gives the same reaction with sulphuric acid and bromine, and both alkaloids yield the same results with the phosphoric acid test as digitalin. The latter compound can, however, easily be detected by Pettenkofer's test.

On adding sulphuric acid to a dilute solution of dried bile containing a trace of digitalin, a splendid red color is produced as soon as the temperature rises to 70°. One c.c. of a decoction of 0·3 gram of foxglove-leaves in 180 grams of water gave the reaction quite distinctly. 0·03 and 0·05 gram of digitalin were dissolved, each in half a litre of Bavarian beer, and the solutions treated by the method of Stas-Otto ; no digitalin could be detected in the residue by means of bromine and sulphuric acid, whilst the least trace of it, after being washed with water, gave an intense color with Pettenkofer's test. Other glucosides give the same reaction, but this does not prevent its application in a toxicological research, if the physiological effects are also taken into consideration. A similar case is the detection of the picrotoxin be means of Fehling's solution, which is also reduced by many other substances.

The residue obtained from the acid ethereal solution may also contain lactic acid, tartaric acid, colchicia, and traces of atropia and picrotoxin, but these bodies are not colored by Pettenkofer's test, nor are other alkaloids affected by it, with the exception of narcotia and others which give a red color with sulphuric acid alone.

The most characteristic tests of atropia are the dilatation of the

pupil and the aromatic smell which is produced by adding this alkaloid and a little water to a hot mixture of sulphuric acid and potassium dichromate or ammonium molybdate. The latter reaction, although very characteristic, requires great skill; but it takes place without fail on placing the atropia on a few crystals of chromic trioxide contained in a porcelain basin, and applying a gentle heat until the trioxide assumes a green color.—*Pharm. Journ., Nov.* 15, 1873.

ADULTERATION NOTES RESPECTING TURMERIC IN RHUBARB, AROMATIC CHALK POWDER, AND MUSTARD.

By W L. Howie.

Turmeric in Powdered Rhubarb.—The experiments of which the following notes are the result were suggested by the expression of an opinion by many pharmacists of my acquaintance that turmeric was responsible for the brilliant yellow color of certain samples of very fine powdered rhubarb.

The test for turmeric given by Pereira, Christison, and other authorities, and lately elaborated by Professor Maisch, U. S. (*vide Pharm. Journ.* vol. i., 3rd series, p. 1027), requires the preparation of a tincture or decoction of the rhubarb, and is far from delicate, owing to the difficulty of detecting the brown-red tinge in presence of the deep yellow color of the rhubarb. My aim has been to supplant this preliminary exhaustion of the suspected rhubarb by a process which should more completely eliminate the curcumin, and while rendering the test strictly practical for counter use, improve its efficiency.

An effort to discover a menstruum in common use which would dissolve the coloring principle of one only of the drugs under notice proved not altogether successful, in a measure owing to a variation in the peculiar constituents of different varieties of rhubarb, which will further referred to.

Of turpentine, carbon bisulphide, benzole, ether, and chloroform, I have been induced to prefer the last-named, though the test can be applied with either of the others, should convenience suggest such a course; but, with the exception of ether, none seems so efficient as chloroform, on account of the readiness with which it dissolves curcumin, and its volatility, rendering the manipulation of a number of samples exceedingly rapid.

I discard ether, because chrysophanic acid is much more soluble in it than in chloroform.

The application of the test is as follows:—

Let the required number of pieces of white blotting-paper, about three inches square, be numbered and placed on a pill tile or glass slip; in one corner of each of these papers place about five grains of the several rhubarb samples to be tested, keeping the powder as much together in one heap as possible; press it flat and smooth with the aid of a piece of paper, and drop cautiously on the centre of the powder, chloroform, so that it may slowly percolate to the circumference, carrying with it any soluble matters, and extend nearly one inch from the powder, taking care not to float any particles over or under the paper, which would interfere to some extent with the succeeding tests. Having allowed the papers to dry, it will be found that a yellow stain of varying intensity has been left around the powder. With really fine, bright-colored East Indian rhubarb, this stain is scarcely perceptible, but cheaper and darker samples may yield a brilliant yellow, while even the finest bright-colored English powder will give a yellow stain as deep, and in most cases, deeper, than the darkest East Indian. Should turmeric be present in quantity in any sample it will at once give a brilliant yellow stain, in tint undistinguishable from that of the rhubarb, but which may readily be identified by the following tests.

Place a minute pinch of biborate of soda in powder on that portion of the paper over which the chloroform had extended, and which probably has a yellow tint, choosing the deepest colored part. With a glass rod deposit a single drop of hydrochloric acid over the borax. In a few seconds, should turmeric be present, a distinct red will be produced, which is changed to black or greenish black with solution of potash, but no change, except a slight bleaching, takes place if the yellow is caused by rhubarb colors only. A drop of solution of potash instantly changes the yellow stain of turmeric to a more or less brown tint, while a pure rhubarb gives a bright reddish-purple color.

For delicate operations, a saturated solution of boracic acid is preferable to the powdered borax, so that any obstruction of view by the white powder may be obviated; but it is necessary in either case to use hydrochloric acid, which quickens and intensifies the action of the boracic acid.

By this means turmeric can readily be detected in rhubarb contain-

ing only 0·05 per cent. While 0·1 per cent., or seven grains in one pound of rhubarb, gives at once distinct and unmistakeable evidence of its presence.

As turmeric often carries in its train wheaten flour or farina, which can be best identified under the microscope (*vide* Pharm. Journal, vol. ii , 3d series, p. 841), rhubarb in which it is found should always be looked upon with suspicion.

It is gratifying to be able to state that of some thirty-six samples procured in different parts of the United Kingdom, only in one have I found turmeric: and strangely it was in a specimen of the old time Turkey, which a friend had carefully stored as a curiosity. The quantity present however was so small, about 0 07 per cent., that it could hardly be called a wilful adulteration, and may be accounted for when we remember that it is, or was, the practice of some dealers to rub the roots with turmeric to improve the color. Some such roots had no doubt been used in this instance for powdering.

That no one may be deterred from testing every parcel of rhubarb before taking into stock, I have only used chemicals found on the shelves of every pharmacy, and may just add that five samples may be tested in as many minutes, leaving no apparatus soiled but a glass rod and pill tile, and at the cost of a fluid-drachm of methylated chloroform.

European in East Indian Rhubarb.—The observation of the regularly varying depth of tint of the yellow stain on paper, given by different rhubarbs with chloroform, suggested this test as a useful and ready means of determining not only the absence of turmeric, but also the quality of the drug.

East Indian rhubarb, sound, pale in color, dense, and freed from the cortical layer, when reduced to powder gives up almost no color to chloroform. A dark-colored but otherwise sound piece gives but a slight tint, while the cortical layer gives a more distinct yellow, as does in a yet more marked degree the interior of such pieces as are worm-eaten and rotten.

English indigenous rhubarb even when carefully selected gives a deep yellow tint, which is yet more intense from cortical and faulty pieces.

French indigenous rhubarb which sometimes appears in commerce in this country (*vide* Pharm. Journal, vol. ii., 3d series, p. 1009), though in external appearance and density greatly superior, is in

therapeutic value and chemical characteristics much like our own native root, and gives up about as much color to chloroform.

Of the character of the stain given by inferior or false rhubarbs, excepting its intensity, as compared with that produced by fine East Indian root, I have unfortunately been unable to distinguish any peculiarity such as would lead to its unfailing detection: still the constancy of the variation, according to the kind of rhubarb used, is such, I think, as ought to give a reliable index of quality.

A powder offered as East Indian rhubarb, of pale brilliant color, having the usual characteristics of that variety, should give but an exceedingly pale yellow tint. Should a deep yellow be given I would suspect English or French contamination. An East Indian powder of a dark hue however may give almost as deep a color as English, and still be genuine: though by this color I would judge it was the product of unpicked roots, trimmings, or even worm-eaten pieces, according to the depth of tint.

The few specimens of Turkey rhubarb I have been enabled to experiment upon, through the kindness of several friends, yield results like East Indian.

The cause of this varying color yielded by different rhubarbs is somewhat obscure, the chemistry of the drug being as yet far from satisfactorily elucidated. Chloroform seems to dissolve out chiefly the resinous principles erythroretin, phæoretin, (and aporetin?) which exist in varying quantity in different parts and varieties of root, while the crystalline principles chrysophanic acid and emodin are left behind.

Beautiful aggregates of granular crystals of chrysophanic acid may be easily obtained by percolating ether after chloroform through East Indian rhubarb, and allowing the ether to evaporate spontaneously. It is noteworthy that English and French rhubarbs treated thus yield no such crystals, the residue being a minute quantity of pale brown gummy extractive; though from all varieties distinct brownish acicular crystals, probably emodin, will be observed on the sides of the evaporating basin.

It may be suggested that chrysophanic acid which is recognized as the chief principle of rhubarb, by continued exposure to atmospheric influences, absorbs oxygen and is converted into what is at present known as the resins erythroretin and phæoretin, which some have not accepted as distinct principles, but assert to be "nothing but im-

pure chrysophanic acid." (Batka). Being thus changed in the exterior insect-perforated and spongy portions of the root into amorphous resins soluble in chloroform, we may trace in imagination the cause of the deep yellow stain given by deteriorated roots.

The formulæ slightly bear out this theory, that of chrysophanic acid given by Rochleder and Heldt, who seem to have obtained it from the lichen *Parmelia parietina,* is $C_{10}H_8O_3$, and that given by Thann, who procured it from rhubarb, is $C_{17}H_{10}O_2$, while that of phæoretin is stated as $C_{16}H_{10}O_7$, and erythroretin $C_{19}H_{18}O_7$ by Gmelin, whose formula for chrysophanic acid is $C_{14}H_{10}O_3$ (altered to new notation).

Chrysophanic acid gives with caustic alkalies a red color, and erythroretin a bright purple, as may be observed by touching the yellow rhubarb stain with solution of potash.

With a substance such as rhubarb, varying in chemical as well as physical characteristics, great care must be exercised before pronouncing definitely upon any test for distinguishing between the varieties, depending upon such a minute difference as depth of tint. While putting forward this method of identifying European in presence of fine Eastern grown rhubarb with some degree of confidence, having found unvarying results from the examination of well-nigh one hundred specimens, it is much to be desired that others would take up the subject and confirm or discredit the results I have obtained.

It is necessary that day-light be used in following these tests, as gas, or other common artificial light being yellow, the delicate tints are thereby rendered invisible.

Turmeric in Aromatic Chalk Powder.—As with bright-colored rhubarb, so it is not uncommon to hear turmeric suggested as the cause of the fine yellow color of some makes of aromatic chalk powder.

This and other powders containing saffron may be tested exactly in the same manner as above directed for rhubarb. Polychroite, or crocin, the coloring principle existing to the extent of 50 or 60 per cent. (Pereira) in hay saffron is quite insoluble in chloroform, which only dissolves out a small quantity of yellowish oil. Aromatic chalk powder should therefore give no yellow stain with chloroform; a very small proportion of turmeric will thus be at once detected.

The saffron yellow, which may be obtained by using alcohol instead of chloroform, unlike that of turmeric, is changed to green by con-

centrated nitric acid, and to indigo blue, fading to dirty-red and brown, by sulphuric acid.

Turmeric in Mustard.—In "mustard condiment" turmeric will be found by the same process, though like the gilding on otto bottles, it is generally expected, and not so likely to disturb a proper estimation of the quality; besides, it seems to serve an important purpose in keeping the article presentable for a week or more after being made, while a pure flour soon becomes unsightly, and has to be renewed for table use almost daily.

Mustard branded "genuine," should contain no turmeric.

Other applications of the principle involved in this test will no doubt suggest themselves to many pharmacists.—*Pharm. Journal, Nov.* 1, 1873.

THE DETECTION OF SOLANIA AND SOLANIDIA.

By Professor Francois Salmi.

The author, in a memoir, presented to the Institute of Bologna, demonstrates that solania, in an acid solution, and at a temperature beyond 10° or 11°C., is in twenty-four hours decomposed partially into solanidia and other products. After remarking that this decomposition would nearly always take place in the viscera, he points out that although toxicologists are acquainted with some characteristic reactions of solania, they are as yet unacquainted with the means of detecting solanidia. This has led Professor Salmi to investigate the subject, and to publish in his memoir what he considers to be the most characteristic tests for the presence of solania and its derivative. The principal reagents for solania are—

1. Brominated hydrobromic acid, which gives a violet coloration.

2. Dilute sulphuric acid reduces it by eremacausis, giving a violet-red coloration.

3. Nitric acid and an alkali give a pale yellow color.

4. Sulphuric acid and arsenic or phosphoric acid, added successively, give a red coloration.

5. Traces of chloride of platinum give a purple coloration.

6. Phosphoric acid and traces of molybdic acid give the same purple color.

7. Brominated hydrobromic acid gives rise to long acicular crystals if the combination be treated with water and evaporated to dryness.

Solanidia may be recognized by—

1. The special form of the crystals of its hydrochlorate.

2. The form of the crystals of its hydrobromate.

3. The bright yellow color which results from the action of nitric acid and a caustic alkali.

4. The red color caused by phosphoric acid, and traces of molybdic acid.

5. By the orange-yellow color produced by brominated hydrobromic acid when the mixture is evaporated to dryness.

Professor Salmi states, that by operating with the care required in such experiments, small quantities of either of these substances may be indubitably detected that would escape observation with any of the processes indicated in treatises on toxicological chemistry.—*Pharm. Jour. and Trans., Nov.* 29, 1873.

SUSPENSION OF BISMUTH IN MIXTURES.

The September number of the *New Orleans Medical and Surgical Journal* contains a paper entitled "Practical Questions to a Practical Druggist, with his Answers," and signed by Wm. A. Vogel. We clip from it the following:

What media are best suited to hold bismuth or powdered charcoal in suspension, when the physician desires to obtain their most efficient action as absorbents?

A. The common and time-honored practice of suspending bismuth in mixtures by the aid of gum arabic, I will not venture to pronounce positively bad, yet, in my opinion, it deserves to be criticised, and should be discarded for some more appropriate method. I have observed that bottles coming back to be refilled, frequently contain at the bottom quite a considerable quantity of the bismuth originally put in, and which was not at all easy to dislodge. It seems that the particles of bismuth are enveloped, as it were, by the gum, and in their gradual descent, carry this with them to form at the bottom a finely agglutinated mass which can only be broken up and again thoroughly mingled with the supernatant liquid by energetic and protracted agitation. Although invariably admonished to do this by a "shake well" label, the direction is seldom properly conformed with, and patients, and even doctors, will sometimes indulge in the, to them, delightful occupation of censuring and rebuking the innocent apothe-

cary for having prepared the medicine badly. Several years ago I first suggested using a solution of wheat starch, in the proportion of one drachm to four ounces, in the stead of gum, and to my gratification it was at once adopted as a decided improvement by many physicians. The suspension, I admit, is not permanent, yet the separation is very gradual, and simply upturning the bottle promptly restores the desired condition. For charcoal mixtures, half a drachm of starch to four ounces will be sufficient. If a sweetener is to be added, glycerin, for obvious reasons, will be found to answer better than sugar.—*New Orleans Med. and Surg. Journal. Sept.* 1, 1873.

A NEW SOLVENT OF PHOSPHORUS; ITS PREPARATION AND PHARMACEUTICAL USE.

By A. W. Gerrard,

Dispenser aud Teacher of Pharmacy to the University College Hospital.

The principal known and most generally adopted solvents of phosphorus and pharmaceutical purposes are bisulphide of carbon, chloroform, ether, alcohol, oil of almonds, oil of theobroma, and mutton suet.

The power of these bodies to dissolve this element varies from any proportion to less than half per cent.; the most powerful being bisulphide of carbon, the least, alcohol.

Most of the above solutions of phosphorus, when dispensed, are of an unsatisfactory and unstable character. Those which are fluid and miscible with water in the presence of mucilage—the manner in which it is usually prescribed—are rapidly decomposed and become inert; they are likewise nauseous and objectionable to the patient in an extreme degree. The solid forms are but little better and are exceedingly troublesome to manipulate.

Bisulphide of carbon has been recommended by Mr. Proctor, of Newcastle, as a means of dispensing phosphorus in the pill form, and it answers the purpose very well, with the exception that the pills retain a compound smell of phosphorus and bisulphide of carbon, which is repulsive in the utmost degree.

The new substance which I propose to add to the list of solvents of phosphorus is resin, that body described in the Pharmacopœia as the "residue of the distillation of the turpentine." This substance suggested itself to me amongst others as a probable solvent,

and the result of my experiments upon it is that I have found it capable of dissolving four or more per cent. of phosphorus; the limit of its solubility is a question for further experiment.

I would call this substance phosphoretted resin. The method of preparing it is thus:—Take a strong wide-mouthed well-stoppered bottle and weigh it, then melt a quantity of resin sufficient to fill the bottle; let the bottle be warmed, then pour in the resin to nearly but not quite fill the bottle, reweigh, and for every ninety-six parts of resin take four of phosphorus. Now observe that the resin is in a fluid state; if so, add the phosphorus, and fix the stopper tightly. Place in a sand-bath previously warmed, and apply heat to 200° C. or 392° F.; digest at this temperature, and shake frequently until the phosphorus is dissolved.

The kind of resin to be used in this preparation is the black translucent variety, know in commerce as rosin, not that pale yellowish kind usually met with in chemists' shops, unless it has previously been deprived of its water, of which it contains a varying amount, sometimes ten per cent.

In conducting the process, it is necessary to observe the following precautions:—In adding the phosphorus, if possible let it be in one piece, and take care that the resin is previously in a fluid condition, as then the phosphorus readily sinks below the surface, and is covered by the resin; otherwise, if the phosphorus were in small pieces and the resin semi-fluid, the phosphorus would rest on the half-hot resin, and speedily take fire; but by observing the above precautions, this accident may be prevented.

A bottle full of the preparation should be made at a time, as I find there is great risk of accident (having had one myself) if the vessel is only partly filled. The phosphorus is also volatilized, and deposited in the upper portion of the bottle.

Keep a thermometer in the sand-bath during the process, and maintain the temperature between 200° and 210° C. At higher temperatures the resin boils, and the heat is liable to change the phosphorus to the red amorphous state.

When the prepared resin has cooled it is difficult to remove it unless the bottle be broken; the method I have adopted is to draw it from the bottle, when partly cooled, under hot water.

It is a pharmaceutical process which, like many others, requires care and attention to ensure success, but whatever difficulties may arise, to a practical person a remedy will suggest itself

I will here mention a curious change which takes place if this phosphoretted resin be reheated. When it reaches a certain temperature it becomes of a whitish cream color throughout; if the temperature be raised still higher it again becomes transparent: this phenomenon does not occur in the cooling. It is probably due to the influence of molecular change.

The formula I would suggest for its exhibition is the following:—

Take of—

Phosphoretted Resin, 4 per cent. . .	25 grains.
Powdered White Sugar	75 "
Tincture of Tolu, a sufficient quantity.	

Pulverize the resin, mix with the sugar, and form into a mass with tincture of tolu,—eight to ten drops are sufficient; then divide into twenty pills, each pill will contain one-twentieth of a grain. This forms a mass of an excellent consistence, and pills made therefrom retain their form and present an elegant appearance without the addition of any coating; they have but a faint odor of phosphorus, and that may be completely removed by the addition of oil of peppermint.

The experience gained from the administration of these pills in the in-and-out-patients' departments of the hospital to which I am attached proves that the therapeutic properties of the phosphorus are in no way injured or modified by this combination, but that it is fully equal to any that had been previously used.

In conclusion, I consider the advantages of this preparation to be that it is inoffensive to the tastes of the patient, definite and reliable for the prescriber, ready and convenient to the dispenser, and I believe judging from its nature it has unlimited keeping powers.—*Pharm. Journal* (*London*), *Dec.* 6*th*, 1873.

ON ANTIMONY TERCHLORIDE AS A REAGENT FOR OILS.

By Isidor Walz, Ph. D.

All chemists who have occasion to occupy themselves with the analysis and testing of oils must admit the unsatisfactory condition of our science as regards these substances, and the desirableness of finding a larger number of characteristic reagents for the same. With this object in view I first took up anhydrous stannic chloride, but abandoned it after trying it with several oils, because the abundant fumes which it gives off render it a very disagreeable reagent to

work with. In passing I may mention that I found anhydrous stannic chloride completely soluble in benzin; the oil after a time turns reddish-brown and is partially resinified, while large acicular crystals form throughout the liquid.

Turning next to antimony terchloride, I attempted to use (Merck's) "solution of terchloride of antimony, sp.gr. 1·345," but found this would not mix sufficiently well with oils to produce satisfactory reactions. Good results were, however, obtained by concentrating this solution on the water-bath to a syrupy consistence.

Antimony terchloride, as thus prepared, reacts with all the oils which I have tried, animal, vegetable, essential, and those derived from petroleum.*

In the case of the animal and vegetable oils there ensues generally a rapid darkening, the color turning to a reddish, greenish, or dirty brown, accompanied generally by a perceptible rise in temperature, and increased consistency of the oil, the latter becoming viscid, and in one or two cases solidifying altogether. After the lapse of a little time a stratum of antimony chloride solution separates at the bottom of the test tube, which has a greenish-yellow color. The oils for which this general description may suffice are rape seed, poppy seed, tallow, neat's foot and sperm.

Some characteristic reactions were observed with the following:

1. Olive oil (three samples). Forms a whitish emulsion, rapidly passing through light to dark green. No perceptible rise of temperature.

2. Cotton seed oil (two samples.) Turns chocolate brown, with evolution of considerable heat. One of the samples solidified a few minutes after the test was applied, so that the tube could be inverted, while still warm, without the oil flowing out.

3. Neat's foot oil. Turns pink; subsequently darker and thicker. The temperature rises.

4. Rosin oil. Turns purple. Though the color becomes gradually darker, the peculiar purple tint can be recognized even after a long time.

Of the petroleum oils I tried gasolin, benzin, and kerosene. After shaking, two strata separate in the test-tube. A portion of the oil is resinified, the resin adhering to the sides of the tube a thin,

* The experiments were made by putting 2-3 c. c. of the oil into a test tube, adding a few drops of the reagent, and shaking till a mixture was effected.

peculiarly colored, blueish-green-purple coating. The lower stratum is of a bright red color. Antimony terchloride is therefore a very good reagent for the petroleum oils.

With oil of turpentine I obtained a very violent reaction, attended by the evolution of great heat and the deposition of a yellowish resinous mass.

Laboratory, No. 18 Exchange Place, New York.—*American Chemist, Nov.*, 1873.

NOTE ON THE COMPOUND OF STARCH WITH IODINE.

By E. Sonstadt.

Some starch was kept for more than two months in a solution of salts containing more free iodine than the starch could take up. The iodized starch was then washed for a fortnight on a filter, by which time the water came through very nearly colorless; it was then further washed by decantation until the water was colorless after settling. The iodized starch thus prepared was black, and had little, if any, odor. A portion of it, air-dried, was found to contain 3·2 per cent of iodine. Another portion was then heated in an oven for a long while at a temperature somewhat higher than that of a water-bath. While drying, it smelt perceptibly of iodine, but, when thoroughly dry, it was perfectly free from odor, and the color remained black. This stove-dried compound, heated in a closed tube, gave off no trace of free iodine, but a small quantity of a yellowish vapor came off, of a pungent odor, attacking the eyes, and condensing in the cool part of the tube in drops. The heat was then raised to redness, and the charcoal formed examined for iodine, which it proved to contain.

The stove-dried compound is extremely stable, and the ordinary reagents attack it very slowly: it could not be analyzed by treatment with solution of thiosulphate of sodium, or of chlorine. A solution of the former, in excess, failed to decolorize it after a week's treatment, with frequent shaking. It was prepared for analysis by moistening it with a strong solution of hydrate of sodium, and heating to redness, and the iodine was estimated in the solution of the residue by chlorine-water. It contained 3·2 per cent of iodine, the same percentage of iodine as was contained in the air-dried specimen.

Another portion of the stove-dried compound was charred at a gentle heat, continued for about an hour, in a covered crucible, and

at the last the heat was raised for about ten minutes to low redness. The charcoal proved, on analysis, to contain 3·2 per cent. of iodine, equal to 19·64 per cent. of the iodine contained in the specimen before its conversion into charcoal. Thus, about four-fifths of the iodine contained in the strongly-dried iodized starch is driven off (though not as a free iodine) by charring at a red heat, and a fifth of the iodine remains with the charcoal formed.—*Chem. News*, *Nov.* 14, 1873.

ON THE OLEO-STEARATES, AND PARTICULARLY ON THE OLEO-STEARATE OF ZINC,

By Arthur Van Harlingen, M. D.

Translated from the *Bulletin Générale de Thérapeutique*, Sept. 1873.

We desire to call the attention of practitioners to the advantages which these compounds present, both as entering into particular pharmaceutical preparations, and as to the therapeutic results which may be hoped for from their use.

Oleo-stearates (or rather oleo-stearo-margarates) are salts which have as bases oxides of the various metals, and as acids the oleic, stearic, and even margaric; and which are extracted from fatty substances by saponification.

Two processes may be employed for the preparation of these salts: one, which is direct, consists in mingling in presence of a certain quantity of water the different oxides which it is desired to combine, and the acids, or rather the natural fatty substances which are found in combination with glycerin under the names of olein, stearin, and margarin. In this process the action of heat is often necessary, in order that the combination may be more easily effected.

This method is similar to that by which almond soap (oleate of soda), white soap, and lead plaster (oleo-stearo-margarate of lead) are prepared.

In other cases, and particularly where the oxide which is to enter into combination is very slightly alkaline, or of feeble solubility in water, and where, on the other hand, the oleo-stearate is insoluble in the same vehicle, it is necessary to have recourse to a second process, which permits of obtaining the salt indirectly and by double decomposition.

It is by this process that the oleo-stearates of iron, copper, mercury, etc., and of the various alkaloids, are obtained.

For this purpose a solution of almond soap is added in small portions to a solution of some soluble salt, with the base of which it is desired to obtain an oleo-stearate, until a precipitate is formed. Care must be taken always to employ an excess of the solution of soap, the presence of which excess is recognized by the milky tint of the supernatant fluid, the latter being clearly separated from the precipitated oleo-stearate.

That metallic salt should be chosen which precipitates most easily: thus, for iron or copper the sulphate, for mercury the per-nitrate, should be used; avoiding in the latter an excess of nitric acid, which possesses the property of decomposing the alkaline soap and setting free the fatty acids.

For the oleo-stearates of the alkaloids as proposed by M. Tripier, the chlorides of morphia, quinia, etc., are used.

The salts, as we have said, offer as pharmaceutical preparations several advantages, which have been pointed out by various writers, particularly M. Jeannel.

They allow, by their easy solubility in fatty substances, the preparation of ferruginous oils, and pomades containing active principles (oleo-stearates of morphia, quinia, etc.), where the state of solution in the excipient in which they exist makes them preferable to similar preparations where the active principles are incorporated by simply mixing or are dissolved in water, and are perhaps much less easy of absorption.

Finally the oleo-stearates lend themselves successfully to various therapeutical applications. To give a single example, we may cite the oleo-stearate of zinc, which mingled with a convenient quantity of an unctuous excipient, as in the following formula, gives excellent results in the treatment of chronic eczema accompanied by itching:

℞. Oleo-stearate of zinc (dry), 3 parts;
Mutton-suet, 15 parts;
Oil of sweet almonds, 15 parts.

Slowly incorporate the oleo-stearate of zinc with one part of the oil of almonds in a slightly warmed porcelain mortar, and add, little by little, the melted and partially cooled mixture of the remainder of the oil with the suet.—*Medical Times* (*Philadelphia*), *Nov.* 1, 1871.

THE EXAMINATION OF BLOOD-STAINS.

A Commission, composed of MM. Mialhe, Mayet, Lefort, and Cornil, have furnished an interesting report on this subject (*Repertoire de Pharmacie*, July 10th, 1873; *Progrès Médical*, August 23). They point out that in the present day it is no longer possible, in the examination of blood stains in legal medicine, to rest satisfied with the physical characters observed by the naked eye. The microscope, sometimes alone, but more often associated with chemical analysis and the spectroscope, enables us to obtain an exact diagnosis formerly impossible in a great number of cases. Two conditions may occur.

1. When the stain is of recent date or supposed to be so, the red corpuscles should be particularly examined, and every care taken to preserve them without change. The stains must not be washed with water, so that the hæmatin may not be altered. After insisting on the microscopic characters of the blood-stains, isolated or compared with those of various animals, the commission enumerate with care the fluids which are destructive or preservative of blood-corpuscles. Among the first, water, and particularly hot water, acetic, gallic, hydrochloric, and sulphuric acids; and of alkalies, potash and soda, even in weak solution, and ether and chloroform, and many other reagents, so alter the blood corpuscles as to cause them to entirely disappear. Alcohol, chromic and picric acid, and bichromate of potash, preserve the corpuscles, though they alter their form. The preservative fluids are those whose composition approach nearest to serum, such as the iodized serum of Schultze, an excellent preparation, made with amniotic fluid, to which are added a few drops of the tincture of iodine, so as to give it the color of white wine; or better, a fluid composed thus—white of egg, 30 grammes; distilled water, 270 grammes; and chloride of sodium, 40 grammes; or even a fluid containing 0·5 per cent. of chloride of sodium, or five or six per cent of sulphate of soda. If the stains be wetted and softened by these fluids and then examined, white and red corpuscles and fibroid particles will be observed.

2. In more difficult cases, when the microscope, owing to the alterations which time has effected in the hæmatin, can give but vague information, examination by the spectroscope and chemical analysis enables us to arrive at precise results. The use of these means, being less known and also more delicate, requires special study.

1. *Spectrum Analysis.*—Coloring matters have the power of absorbing certain colored rays of white light—the same always for the same substance. This is the principle on which spectroscopic examination is based. If into an analysing tube filled with water a few drops of a solution of hæmoglobin be introduced till it has the color of peach-blossoms, the luminous rays of the spectrum passing through this fluid present two bands of absorption between the lines D and E of Frauenhofer in the yellow and the green. The same fact would be observed if a few drops of blood were substituted for hæmoglobin in the analysis. In a case of doubt the hæmoglobin of the blood could be reduced by adding to the latter a reducing body. Destroyed hæmoglobin has a different spectrum from oxygenated hæmoglobin; a single absorption band as large as the two former bands united, and a little to the left of Frauenhofers line D.

2. In blood in a state of decomposition, or which has been treated by acids or caustic alkalies, hæmoglobin is changed into a new substance: hæmatin is formed, which, combined with hydrochloric acid, gives characteristic crystals. In order to obtain them, we must proceed thus. A small fragment of dried blood is placed on a glass slide: it is dissolved in a drop of water, and a minute portion of sea-salt is added. It is covered with a thin slide, and pure acetic acid is made to pass between the two slides, and it is heated over a spirit-lamp, to boiling point. Acetic acid is again added, and it is heated afresh, and this is repeated till the crystals are obtained. They are rhomboidal, of a dirty brown color, quite characteristic, and require to be seen with a magnifying power of three hundred or four hundred diameters. With the smallest quantity of blood these two reactions can always be produced—the spectrum examination and the crystals of hydrochlorate of hæmatin; and they are so certain, that the existence of one alone enables one to affirm the presence of blood.

3. The third process, though not so exact as the preceding, ought nevertheless not to be neglected. If to a very small quantity of blood dissolved in a little water be added a few drops of tincture of guiaicum and of binoxide of hydrogen, a persistent blue color is immediately produced; but this very sensitive reaction can be obtained with other organic matter, nasal mucus, saliva, &c.; it therefore only gives a probability. We must proceed in the following manner. A tincture of guiaicum is prepared with alcohol at 83 degrees, and guiaicum resin; a mixture of sulphuric ether and binoxide of hydrogen is also

made, and enclosed in a stoppered bottle, and kept under water in the dark. This preparation is less liable to change than pure oxygenated water. The object stained with blood, if it be white, is put into a little cup, then moistened with water to dissolve out the blood-stain, and washed in distilled water; this water is then submitted to the action of these reagents. If the thing stained be colored, and the stain little or not at all visible, it must be moistened and then pressed between two or three sheets of white blotting paper, and tried first with the guiaicum. If the stain be of blood, a reddish or brown spot will form on the paper. One of the sheets should be treated with ammonia, and the stain will become crimson or green. A second sheet, treated with tincture of guiaicum and ozonised ether, will give a blue color more or less intense, according to the quantity of the blood.

To recapitulate: 1. If the stains or scales of blood appear recent, the corpuscles may, after the necessary precautions, be examined under the microscope, and their presence, diameter, &c., observed, which will enable one to diagnose the origin of the blood, whether human or animal. 2. If the stains be old and the blood changed, the reaction with the tincture of guiaicum would make the presence of blood probable; but its actual presence cannot be affirmed without spectrum examination, or the production of crystals of hydrochlorate of hæmatin; one of the two is sufficient. It is unnecessary to add that these reactions do not show whether the blood is human or animal.—*Chem. News*, *Dec.* 5, 1873.

ADULTERATION OF TARTARTIC ACID.

By H. Maclagan.

In the account of the proceedings of the Am. Pharm. Association, in the November number of the Journal, I noticed a reference to the presence of sulphuric acid in commercial tartartic acid. That it is sometimes present, and in considerable quantity, I can fully attest, having once suffered considerable annoyance therefrom. Complaint was made by a customer of our seidlitz powders—that there was something wrong with them, as a quantity of white powder remained in the tumbler after drinking. I found, on mixing one, that such was indeed the case—that when the effervescence was about ended, the mixture became cloudy, and in a very short time a considerable white deposit had accumulated in the bottom of the glass. This was collected and examined, and proved to be bitartrate of potassa. Sus-

pecting the tartartic acid, I examined it, and found it to contain sulphuric acid, which sufficiently explained the mystery. The sulphuric acid decomposed the Rochelle salt, producing cream of tartar and sulphate of soda, thus:—

$2K\ Na\ C_4\ H_4\ O_6 + H_2\ SO_4 = 2K\ H\ C_4\ H_4\ O_6 + Na_2\ SO_4$. This makes a considerable difference in the character of the medicine. The patient, instead of taking Rochelle salt and neutral tartrate of soda, is swallowing a mixture of cream of tartar and glauber salt, which, in some cases, might not be desirable.

I did not estimate the percentage of impurity present, but, to judge from the quantity of bitartrate produced, it must have been very considerable.—*Canadian Pharmaceutical Journal, Dec.*, 1873.

Lindsay, Ont.

Varieties.

Distilled Cherry laurel Water as a Vehicle for Narcotic Injections.—M. Luton states that distilled cherry laurel water is the best vehicle for narcotic hypodermic injections as morphia and atropia. It prevents mouldiness of the solution better than any other distilled water, and it does not irritate the tissues any more than common distilled water.—*Med. News and Lib.*, Nov., 1873, *La Tribune Médicale*, 14, Sept,, 1873, from *Rép. de Pharm.*

Determination of Paraffin in Candles Sold as Stearin.—E. Donath having tried the method of Hock (see Amer. Jour. of Pharm., 1873, p. 127), finds that it is very difficult to remove the soap from the filter in the cold by washing with water or dilute alcohol, whilst if the solvent be applied hot, or even slightly warmed, the paraffin forms an emulsion and runs through the filter. The solution of paraffin in ether is also a slow process. Hence Donath proposes the following modification: 6 grms. of the sample are boiled for half an hour with 200 to 300 c. c. of potash lye, specific gravity, 1·15, and chloride of calcium is then added so as to produce a complete precipitation. If a large admixture of paraffin is suspected, a quantity of carbonate of soda is added to the chloride of calcium, which gives rise to the formation of carbonate of lime, and renders the precipitate more easy to pulverize. The lime-soap with which the paraffin is mechanically entangled is washed on a filter with hot water, and dried at 100°. The mass is then pulverized and exhausted in a displacement apparatus with cerosolin (essence of petroleum). The solution obtained is evaporated, and the residue after being dried at 100° is weighed as paraffin. On operating upon known mixtures the author has obtained results correct to 0·3 per cent.—*Chem. News*, Sept. 19, from *Moniteur Scientif.*

Adulteration of Wax with Tallow.—M. Hardy.—Wax floats upon alcohol at 29°. By determining the strength which alcohol must have so that the sample may float upon its surface, the quantity of wax may be found in a sample falsified with tallow only.—

When the Alcoholometer marks—	The Wax contains—
29.00°	100 per cent.
39.63	75 "
50.25	50 "
60.87	25 "
71.50	0 "

Ibid.

Alleged Presence of Iron Filings in Tea.—In several cases of prosecution under the Adulteration Act which have recently been reported, the analyst has been able to demonstrate that a magnet thrust into a specimen of tea would attract certain particles which were stated to be iron filings; and held to be indisputable proof of a fraudulent admixture. That this inference is necessarily correct has, however, been disputed in more than one quarter. Mr. Treffrey, of Exeter, writing to the *Grocer*, asserts that the mineral matter found in tea is not iron filings but a native magnetic oxide of iron, and he states that "it is probably titaniferous iron sand, which is very abundant in China." Mr. Alfred Bird, F. C. S., of Birmingham, says that he has separated particles of mica and quartz from the magnetic oxide of iron found in tea, his inference being "that as magnetic oxide of iron forms part of the soil of China, it would rise with the dust of the country, and coming in contact with the damp leaves would adhere to them when they are dried, and thus make the dried leaves stick to the magnet as if there were iron filings mixed up amongst them." Speculative, to say the least, as this may seem, it would appear to receive some support from an experiment made by Mr. Bird upon some French bean leaves grown in his own garden. One hundred grains were dried, and upon testing with a magnet were found to be attracted by it in a similar manner to that reported of some specimens of tea leaves. A closer examination of the matter adhering to the leaves showed that it was magnetic oxide of iron, and 0.02 of a grain was obtained from the 100 grains of bean leaves. An investigation of the black mould of the garden in which the plants were grown showed that it contained an abundance of magnetic oxide of iron.

If all that the opponents of the Adulteration Act say against it were true, it would be but little to be able to reply that it is not an unmitigated evil; but still it is a fact that the Act has given a great impulse to the investigation of food substances, the benefit of which must appear in an acquisition to our store of knowledge respecting this important subject. For even should Mr. Bird's speculations prove correct, it would not be the only instance that has recently come under our notice where the presence of a gross adulterant has been alleged upon insufficient grounds.—*Pharm. Journ. and Trans.*, Nov. 22, 1873.

Haschisch.—The natives of the Turkish Empire, and in the north of Africa, are far more addicted to the use of the haschisch (*Cannabis Indica*) than to

that of opium. They have a similar effect, yet the former is decidedly preferred. They use either the dry leaves for smoking, or they drink the pressed juice, or use it in the form of cakes soaked with that essence. Much uncertainty prevails among botanists regarding the plant or plants which produce these narcotics—whether they are different species or mere varieties of the common hemp. Probably *C. sativa* and *Indica* are identical, yielding the Gunja and Bhang of the East. Both the above drugs are sold separate in the Indian bazaars, and in external appearance are considerably different. Gunja has a strong aromatic and heavy odor, abounds in resin, and is sold in the form of flowering stalks for smoking with tobacco. It is made up in bundles about two feet long and three inches in diameter, containing about twenty-four plants. Bhang is in the form of dried leaves, without stock, of a dull green color, not much odor and only slightly resinous, and its intoxicating properties are considerably less. Bhang is not smoked, but pounded up with water into a pulp so as to make a drink highly conducive to health, and people accustomed to it seldom get sick. Bhang grows in abundance in Tirhoot and Bhagulpoor in the wild state. In Scinde a stimulating infusion made from the plant is much drunk among the upper classes, who imagine that it is an improver of the appetite. Gunja is frequently mixed with tobacco to make it more intoxicating. This is especially done by the Hottentots, who chop the hemp leaves very fine and smoke them together in this manner. Sometimes the leaves powdered are mixed with aromatics, and thus taken as a beverage, producing much the same effects as opium, only more agreeable.—*Canadian Pharm. Journ., Nov.* 1873.

Homœopathic Pilules Proved a Sham.—The *London Practitioner* for April, 1873, gives account of recent examinations, by chemical analysis, of some of the more commonly used homœopathic pilules. The average weight of each was 0.6 grains; and, in the strength known as the second dilution, should contain 0.00006 of a grain of the drug. This quantity, in the case of the drug chosen, is fairly within the reach of analysis. The third dilution places the drug beyond the reach of analysis.

In *sulphate of copper pilules*, no copper could be detected in a sample of 100 pilules, nor in another sample of 200 pilules. As little as 0.0001 grain would have been detected, if present, and in these samples there should have been 0.006 gr. in the first, and 0.012 grain in the second.

In 200 *corrosive sublimate pilules*, less than 0.0005 gr. was found, whereas 0.012 grain should have been present.

No strychnia or atropia could be detected in 300 *nux vomica* and *belladonna pilules* respectively, though the tests are of extreme delicacy.

The pilules were from two leading homœopathic pharmacists.

Of course there cannot be any effect from the taking of such pilules, except what is due to imagination.—*Boston Med. and Surg. Journal, Oct.* 16, 1873.

Minutes of the Philadelphia College of Pharmacy.

Philadelphia, Twelfth month, 29th, 1873.

A stated meeting of the Philadelphia College of Pharmacy was held this afternoon in the College Hall. Nineteen members in attendance. Dillwyn Parrish President, in the Chair.

The minutes of the stated meeting in September, and the special meeting in October last, were read and approved. The minutes of the Board of Trustees were also read by William C. Bakes, Secretary of the Board, for information, and approved.

Alfred B. Taylor, Corresponding Secretary, reported that he had sent copies of the resolutions adopted at the meeting in September, relative to the abolition of the stamp tax on medicines to the different Colleges of Pharmacy and Pharmaceutical Associations in the United States, soliciting their co-operation in endeavoring to effect a repeal of the law, and that a number of answers had been received by him, all showing a general interest in the matter, and promising to use their best endeavors to effect a repeal of the obnoxious features of the law.

Charles Bullock, on behalf of the Committee appointed to bring forward a test case for a legal decision relative to the ruling of the Commissioner of Internal Revenue, made a verbal report, the substance of which was as follows:

The Committee, with their attorney, called upon the United States District Attorney, and agreed with him to have the subject amicably brought before the Court; but Supervisor Tutton refused to act in the matter, stating that he could only do so when a demand had been made upon him for goods seized by the revenue officers.

The Committee, therefore, under the circumstances, thought it best to abandon the subject for the present. The Committee, were on motion, continued.

Mr Bullock further alluded to the matter as it had been attended to by the Committee of the Drug Exchange, stating that many thousand circulars had been sent all over the United States, and that petitions had been si_ned by over three thousand druggists, desiring a repeal of the onerous features of the law, and that these had been placed in the hands of the Hon. Leonard Myers, to be used at his discretion in Congress.

The Committee on Deceased Members reported that they had acknowledged the receipt of the portrait of Elias Durand, and conveyed the thanks of the College to Mr. A. B. Durand for the gift.

Charles Bullock, on behalf of the Committee on deceased members alluded to the death of Henry K. Bowman, a member of the College, and called upon Joseph P. Remington, a friend of the deceased, who read the following obituary;

Henry Kresge Bowman was born in September, 1846, in Kresgeville, Monroe county, Pa. He was unfortunate enough to lose both parents when very young, and he, with his two sisters, younger than himself, were adopted by his grandfather, Philip Kresge, living in Kresgeville, and a farmer of the old school one of the sturdy pioneers of that part of the State, who instilled into the mind of young Henry those principles of integrity and honor which became his bulwarks in the short eventful life that followed.

Whilst still a boy, Henry showed evidences of a nobility of soul as rare as it was praiseworthy, in his devotion to his motherless sisters, whose advocate he became, defending them frequently with ability far beyond his years, and with a pertinacity which proved to be a distinguishing trait in future life.

The early part of the year 1864 found him in Philadelphia, seeking for an opportunity to feed the ambitious longings of his nature, which could not be satisfied with the quiet round of duties of a life in the country. He found a position with B. F. Johnson, a pharmacist, doing business in the northern part of the city, with whom he engaged as an apprentice.

He served here four years and three months, struggling under the disadvantages of an imperfect knowledge of English literature; but his motto was "Forward," and though the hours allotted to business were by no means short, his employer often found him poring over his book late at night and early in the morning.

Still anxious to perfect himself as well as he could, he sought the welcome walls of the College of Pharmacy, where, by close study, he was soon in the foremost rank.

His class complimented him by electing him President of the Zeta Phi Society, and although he excited some opposition by his manner, he was in the main successful. The position that he was placed in early in life, in caring for his sisters, produced in him a manner which seemed sometimes rather patronizing, but the majority of his classmates were willing to overlook his fault, which was one that was not sufficiently glaring to be uncomfortable.

Graduating amongst the first in the class, his friends thought that for a time at least his ambition would be satisfied; but new fields arrayed themselves enchantingly before him, and although deeply attached to his preceptor and his home, he sought and obtained a position with the well-known firm of Powers & Weightman.

It was not long that his peculiar abilities went unappreciated here; honest, self reliant and persevering he rapidly won his way. Soon after beginning his engagement with them, Henry was selected to prepare and take charge of a valuable collection of chemicals that were to be placed on exhibition at the meeting of the American Pharmaceutical Association in Chicago.

Showing his aptness for this kind of work, and the firm having had many requests to exhibit their chemicals in various parts of the country during the next three years, he visited the more important cities as their representative; whilst returning from Cincinnati in the fall of 1870, by way of the Baltimore & Ohio Railroad, when near Grafton, the sleeping car in which he was riding was rolled down an embankment fifty feet high; the accident occurred early in the morning and was caused by a misplaced switch. A number of the passengers were seriously injured, and among the rest Henry. With characteristic energy he immediately set to work helping the wounded, and seemed to be unmindful of his own wounds, generously lending his services at all times to any who needed them. He rescued a lady, who was extricated with difficulty from the surrounding debris, and did not leave her till she was safe at her home in Philadelphia.

When he arrived home, it was manifest that he had been injured seriously. Although he regularly attended to his duties, those who knew and were interested in him could not fail to notice that his health was gradually declining, and the change which took place recently was exceedingly rapid, terminating in death on the 11th of this month.

The College has lost a valuable young member, the Alumni Association an active and beloved officer, the firm whom he was proud to serve a promising business man, the church of which he was a member a practical Christian, and the strings need to be lightly touched when the sad loss to his sisters is whispered. R.

The reading was listened to with interest, whilst a feeling of sadness per-

vaded the meeting at the loss of one so young, and who had just entered on a life of usefulness. The report was referred to the Publication Committee.

Letters were received from Messrs. W. G. Buchanan and Charles L. Jefferson, resigning their right of membership in the College. On motion, their resignations were accepted, and the Secretary was ordered to notify them of the fact.

A letter was received by Alfred B. Taylor, Corresponding Secretary, announcing the organization of the Richmond Pharmaceutical Association, on the 10th of November last. This College extends to the association the hand of fellowship and a warm welcome. The Corresponding Secretary was didirected to acknowledge its receipt.

A letter from Jos. L. Lemberger, of Lebanon, Pa., on the subject of the stamp tax, was also read and directed to be filed.

Then on motion adjourned.

WILLIAM J. JENKS, *Secretary.*

Minutes of the Pharmaceutical Meeting.

The regular meeting was held December 16th, 1873. Present, twenty members. On motion Charles Bullock was elected President, and the Registrar read the minutes of the last meeting, which were approved.

Under the head of donations to the cabinet, Dr. W. H. Pile presented an accurately graduated standard minim pipette, and on behalf of the manufacturers Andrew Blair presented a new drug mill, made by the Enterprise Manufacturing Company, which was received and the thanks of the meeting directed to be forwarded for the gift.

The reading of papers, essays, etc., being next in order, R. V. Mattison presented "Purified Crab Orchard Salt and Tasteless Chloride of Iron Salt" and read a paper on the "Purification of Crab Orchard Salts," which elicited some discussion from the members, in the course of which it was stated that for a number of years a large wholesale house in Louisville manufactured Crab Orchard Salt from Epsom Salt and Sulphate of Iron, and that with one maker of Crab Orchard Salt, it was customary to throw into the concentrated solution two barrels of Epsom Salt.

Dr. A. W. Miller read a continuation of his paper on cosmoline, vaseline, etc., detailing an improvement in making his paraffin ointment which makes it approximate more closely to cosmoline; his paper was accompanied by a number of interesting specimens illustrating the various steps in the process of making cosmoline. Dr. Pile presented four samples of vaseline to the College, which had been sent to him by the agent.

Professor Maisch presented a carefully selected specimen of Cantharis vittata from J. W. Eckfeldt, Delaware county, also a curious pine cone from Robert C. Davis, both of which were received with thanks.

A discussion was now entered into upon the merits or demerits of the Enterprise Company's drug mill, in the course of which Professor Procter remarked that the principal objection he had to the mill was that the throat was not

large enough to admit large masses of drugs, although he had found it to answer very well for general work and considered it an improvement on Swift's.

Andrew Blair spoke at length in favor of the mill, and believed it to be the best that had yet been contrived for the purpose of grinding drugs. He exhibited five specimens—sassafras, gentian, senna, coriander, and liquorice root—which were ground with just ordinary care and not sifted. The results spoke practically and favorably for the work of the new comer, and it looks as if the time was approaching when the retail druggist could be independent of the drug miller and furnish many of his own powders without going out of his own store.

Professor Maisch considered the mill the best that had yet been devised, and thought that one of the prominent advantages was the facility with which the internal working parts could be viewed by simply turning one screw.

Joseph P. Remington exhibited a combined retort and condenser, which had proved useful; it consisted of a glass cylinder fitted in both ends with rubber corks, which were bored with holes in the centre, through which the neck of the retort passed, fitting tightly; two smaller holes, to accommodate two small tubes, were also made, which permitted the ingress and egress of the water for refrigeration, as is usually seen in Liebig's condensers. He also read an article on Fluid Extract of Rhus Glabrum, which will be found in another place in this Journal.

Andrew Blair brought to the notice of the meeting the improved graduates that are being made at the present time and introduced. The improvement consists in having the plunger graduated, which of course renders the graduate more accurate if the plunger itself is correct.

Dr. Pile said that he had used the graduates, but found an objection when dark liquids had to be measured, on account of the trouble of reading the marks on the inside from the absence of reflection. Some of the graduates are sold, however, marked on the outside in addition by scratching with a file, which remedies this difficulty.

Professor Maisch exhibited a monstrosity in the shape of an orange, which had been sent to him from Mobile, Alabama, from Charles Scott Brown. When the cortex was carefully dissected from the distal end, a small orange was revealed inside of the larger one and connected with it by an internal roll of peel; both were devoid of seeds. The tree which produces these fruits is near Pascagoula, Miss., on the Gulf shore, and has been bearing fruit 114 years.

No further business coming before the meeting, a motion was carried to adjourn.

Joseph P. Remington, *Registrar.*

Pharmaceutical Colleges and Associations.

Maryland College of Pharmacy.—At the regular monthly meeting held December 11th the Committee on Stamp Law reported the collection of memorials distributed through the city containing a large number of signatures, also liberal contributions to defray expenses incident to its presentation to

Congress. An amendment to by-laws and code of ethics, expelling members for cause, was adopted, and a committee appointed to revise entire by-laws and report to the College for action thereon.

A communication from the Medical and Surgical Society of Baltimore, protesting against the action of this College, as published in the *American Journal of Pharmacy*, July, 1873, was read, and on motion laid on the table.

The President appointed J. Newport Potts, Reporter of the College.

J. N. Potts, *Reporter.*

St. Clair Pharmaceutical Association of Southern Illinois.—At the stated meeting held in Belleville, December 9, the Secretary and Treasurer presented their annual reports, after which the following officers were elected for the current year: President, N. T. Baker; Vice-President, Hubert Kuenster; Secretary, A. G. F. Streit Ph. D.; Treasurer, A. Rudolph. A petition to Congress was adopted, requesting the entire abolition of the Stamp Tax upon medicines, in view of the conflicting decisions by different revenue officers; the petition was sent to Hon. Mr. Oglesby for presentation in the Senate, and to Hon. W. R. Merriam for presentation in the House.

California Pharmaceutical Society.—The annual meeting took place on October 9th, 1873. The following officers were elected to serve for the ensuing year: President, John Calvert; Vice Presidents, John Newman and A. L. Lengfeld; Secretary (Recording and Corresponding), J. W. Forbes; Treasurer, Wm. J. Bryan; Board of Directors, John Calvert, Wm. T. Wenzell, J. G. Steele, J. W. Forbes, H. B. Shaw.

The retiring officers presented reports which were accepted.

A report on behalf of the Board of Pharmacy, presented by the Secretary, Mr. J. G. Steele, contains the following information:

There have been registered of Graduates,	20
" " " " Licentiates,	25
" " " " Practising Pharmacists,	81
" " " " " Assistants,	102
	228

Actions have in every instance resulted in favor of the Board when they have been compelled to institute them for infractions of the law. Such a proceeding, however, has been the last resort, every means being employed to induce compliance therewith and to avoid ill feeling toward the Act and the Officers of the Board.

Owing to the onerous nature of the position of Secretary, Mr. James G. Steele has been obliged to resign the position, of which notice is given in the report. At the following meeting of the Board, his resignation took effect, when J. Winchell Forbes was elected to fill the vacancy. The financial affairs of the Society are in the most encouraging condition, the balance on hand being larger than at any previous report, although the expenses for the current year have been heavier.

The meetings of the Society are now held at the rooms of the College, No. 728 Montgomery street.

J. Winchell Forbes, *Secretary.*

Pharmaceutical Society of Great Britain.—At the meeting held December 3d, Mr. Thomas H. Hills presiding, Professor Bentley exhibited fresh specimens of Eucalyptus globulus, and gave an account of some botanical characters and medicinal and other products obtained from this and allied species. Mr. Hanbury remarked that the eucalyptus tree was not only said to cure fever, but what was more remarkable, that it rendered localities that were feverish, habitable. It had been of great advantage to the low lying districts around the Mediterranean and especially Algeria, and the marsh fevers had entirely disappeared from some localities. Dr. Weddell had said that the tree acted like a great sponge drawing the moisture out of the ground, which effect is referred by Mr. Preston to the enormous roots.

Mr. Gale read a note on glycerite of gallic acid, and stated that, on diluting the officinal preparation with three parts of water, the gallic acid crystallizes out; Mr. Martindale had noticed a similar occurrence in consequence of low temperature, without the previous dilution of the glycerin. Mr. M. Carteighe believes that these glycerites have not proved as satisfactory as might have been wished, due to the fact, not generally known, that they require to be mixed with water before use; crystals of ferric chloride dissolved in glycerin had been applied to serious hemorrhages without any useful effect, until the glycerin solution had been diluted with water, when it was at once effective.

Mr. A. W. Gerrard read a paper entitled "A New Solvent for Phosphorus; its Preparation and Pharmaceutical Use." The paper called forth some interesting remarks on the exhibition of phosphorus and some of its compounds. Mr. Gerrard's preparation contains the phosphorus probably mechanically divided in the form of an intimate mixture with the resin.

After an interesting discussion on adulterations, the meeting adjourned to February 4th.

Editorial Department.

Physicians' Prescriptions and Patent Medicines.—Cannot a physician prescribe any article or articles in the Materia Medica (U. S. P.), in such proportions or in such combination as he may judge best suited to his patient? and is not the druggist at liberty to fill such a prescription, when in proper form, without regard to the fact that a similar or identical preparation was or is in existence in the form of a patent medicine?

A correspondent sends this query, and desires to have our views on the subject stated therein. We presume that there cannot be any difference of opinion in regard to the first portion of the query; a physician has the undoubted right to prescribe any article, whether a simple drug, a Galenical preparation or chemical compound, which in his judgment is best adapted for any special case

of sickness; and this liberty of selecting the curative agents is not only confined to those articles which are contained in the Pharmacopœia of the United States, but extends to any article which he may suppose to meet any special indication. Pharmacopœias define the quality of those medicinal agents—whether simple or compound—which are employed to a certain extent; but they are not intended to make a selection of such which ought to be used or rejected by the physician. Hence all pharmacopœias contain a larger number of drugs and preparations, possessing astringent, tonic, aperient, cathartic, sedative, &c., properties, which are actually prescribed by some physicians. The number of drugs and of chemicals actually used by *each* physician is, in the large majority of cases, very small, and, as far as the individual is concerned, perhaps nine-tenths or even more of all the articles might be stricken from his Pharmacopœia. But that even the Pharmacopœia, comprehensive as it necessarily must be, does not define the limits beyond which a medical practitioner does not go, is well known to all pharmacists actively engaged in business, and that such limits cannot be drawn is evident, unless it were possible to fix the boundary lines of human research and progress.

The unlimited liberty of selection naturally includes the same unlimited liberty of combination of remedies; hence, in our opinion, no patent, of whatever kind, can interfere with the cure of disease, by preventing a physician from prescribing certain remedies in any desirable proportion, combination or form. And if the prescribing of remedies used in patented medicines cannot be prevented, surely the compounding of such prescriptions by the pharmacist cannot interfere with the real or pretended rights of anybody, and the pharmacist is not only at liberty, but we would consider him morally bound, to dispense each special prescription, and not to entrust the dispensing of it to some other party in a distant locality.

Some five or six years ago a New York firm procured a patent upon the combination of salts of bismuth with pepsin, and we believe intended at one time to enforce their supposed monopoly; but we have yet to learn of the first physician who, by this patent, had been deterred from prescribing the two articles together, or of the apothecary who, from fear of infringing upon that patent right, had refused to dispense such a prescription

During the last year or two, reference has been repeatedly made in this journal to a combination of cod-liver oil, phosphate of calcium, lactic acid, &c., for which a patent has been obtained by a party of this city. We know that such combinations are at the present time prescribed in various parts of the country, and we believe also in Europe, by formulas published in this journal, and elsewhere; but we do not believe that a single physician or pharmacist has been prevented from prescribing or dispensing these articles, officinal in the U. S. and other pharmacopœias, although they happen to be the same articles for the combination of which the Patent Office has seen fit to issue letters patent.

While we contend for the unrestricted liberty of the pharmacist to dispense any article of animal vegetable or mineral origin, which a physician may happen to prescribe, we desire to be understood as not expressing any opinion in regard to the legality of offering preparations for sale which may be put up in imitation of such for which letters patent have been obtained. We regard all

preparations for which not the full working formula is given, in the light of half or full-blown nostrums, and as akin to quackery, no matter what their real or pretended remedial merits may be.

The Stamp Tax.—A large number of petitions have been presented to both houses of Congress, asking for the repeal or modification of the Internal Revenue Law as far as it relates to the stamping of medicines. We have kept our readers advised of the action taken by the various pharmaceutical bodies throughout the country in response to the ruling of Commissioner J. W. Douglass, as contained in his letter of September 9th, 1873. Since our last issue we have received copies of resolutions and petitions of several societies, in addition to those mentioned in the December number, all of which agree in substance with those previously published.

During the past month a Committee of the Philadelphia Drug Exchange had an interview with the Committee of Ways and Means, having been introduced by Hon Leonard Myers. The result of this interview of course cannot be known, since the Committee will doubtless give a hearing to the Officers of the Internal Revenue Bureau, and to such Committees of druggists and pharmacists desiring to be heard; and we would therefore urge upon our readers in all parts of the country to take such steps as will bring their grievances directly before the proper Congressional Committee, and likewise before their Representatives in Congress and their Senators.

We understand that there is no probability that the internal taxation will be lessened during the present session of Congress; but the members seem to be favorably disposed towards rendering Section 13 of the Act of July 13, 1866, unmistakably clear, by striking out the last portion, commencing with "Nothing in this section shall be construed," &c., and towards modifying Schedule C so as to include only patent or proprietary medicines, and such preparations for which any proprietary claim to merit, composition, preparation or quality is set forth This would leave the tax where it was intended to be put at first, namely, upon *proprietary articles*, and would remove all uncertainty. To accomplish this end every pharmacist can contribute his mite in the manner indicated above.

Charges against Pharmacists —On page 88 of our last volume we published an account of the Proceedings of a Conference of Delegates of Medical Societies in Baltimore, and of the Maryland College of Pharmacy, which grew out of charges preferred against the pharmacists of that city. Page 328 contains a series of resolutions adopted by the Maryland College of Pharmacy after the Committee of Medical Societies had been discharged. We have since received the following communication:

Whereas, A preamble and resolutions have been received by the President of this Association, purporting to come from the Maryland College of Pharmacy, arraigning this Society in unfriendly terms for discharging its Committee appointed to confer with a like Committee from that College upon certain alleged grievances and differences existing between the two professions of Medicine and Pharmacy; and

Whereas The College of Pharmacy has thought fit to publish said preamble and resolutions before sending to this Association an officially certified copy thereof, or waiting for a meeting of this Society to consider and reply to those resolutions, or to explain their action; therefore

Resolved, By the Medical and Surgical Society of Baltimore, that this action of the Maryland College of Pharmacy is unjust, ungenerous and undignified, evinces an unfriendly spirit towards this Society and the Medical profession at large, an eagerness to avail themselves of a trivial and technical excuse to evade the charges made against them, and furnishes additional evidence of the truth of those charges.

Resolved, That the assumption contained in those resolutions, that this Society withdraws its charges against the pharmaceutists by discharging its Committee from their further consideration, is not warranted by that circumstance, and is untrue in fact. On the contrary, we repeat and urge them, singly and collectively, and maintain that the pharmaceutists are daily furnishing additional evidence of their truth.

Resolved, That the Secretary be ordered to send a copy of these resolutions, properly authenticated, to the Faculty of the Maryland College of Pharmacy, and also to the Philadelphia "Journal of Pharmacy," with the request that they be published.

R. W. Mansfield, M. D., *Cor. Secretary.*

Thomas B. Evans, M. D., *President.*

In complying with the request of the Medical and Surgical Soicety of Baltimore, to publish the foregoing preamble and resolutions, we desire to express our regret at their unfriendly spirit. Irregularities and abuses can only be corrected by harmonious action. The Medical and Surgical Society offers in the above no explanation why the subcommittee of the physicians did not meet the subcommittee of the pharmacists, or why their Committee was discharged; but simply reiterates charges, which are admitted to apply to some. The action of the conference at the first meeting appeared to be so friendly and harmonious, that we sincerely trust the honorable members of both professions in the Monumental City will again endeavor to remedy all complaints by friendly and patient counsel.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Deutsche Miniatur-Pharmakopöe. Ein praktisches Hand und Hilfsbuch für Aertze und Apotheker, von Dr Max Biechele, Apotheker. Eichstätt und Stuttgart. Krüll'sche Buchhandlung, 1873. 16o. 406 pages. Price in paper, 1 thaler.

This is the German pharmacopœia translated into the German language, and arranged in such a manner that the formulas are given in definite weights instead of in parts, with space sufficient to insert other larger or smaller weights as may be necessary or convenient. It contains also directions for preparing many chemicals, formulas for which have not been admitted into the pharmacopœia, and which nevertheless may be advantageously prepared by the pharmacist. In each case the yield is likewise given; also directions for detecting the impurities which may possibly contaminate the preparations. The little volume appears to be a handy and practical laboratory companion.

Anleitung zur Erkennung und genauen Prüfung aller in der deutschen Pharmacopœ aufgenommenen Stoffe. Von Dr. Max Biechele, Apotheker. 2 Auflage. Eichstätt, 1873. Krüll'sche Buchhandlung. 16 mo. pp. 237.

Directions for the recognition and accurate examination of all articles contained in the German pharmacopœia

The object of this little work is to explain the tests for identity and purity which are given in the pharmacopœia. The quantitative determinations are usually given by the volumetric method; where the gravimetric method is preferable, the course to be pursued is briefly described. For articles of the materia medica the description of the drugs are given as contained in the pharmacopœia, with some additions where they appeared to be desirable.

The German Pharmacopœia translated into English by Mr. C. L. Lochman, which we noticed in our last number, will be sent by mail on remitting $2.25 (not $2.50 as stated before) to the publishers, Messrs. David D. Elder & Co., Philadelphia. The work will be a valuable addition to the library of all physicians and pharmacists.

OBITUARY.

Louis Jean Rudolph Agassiz the eminent naturalist, died at Boston on December 14. He was born at Motiers, Canton of Freiburg, Switzerland, May 28th, 1807, where his father labored as clergyman, his ancestors having emigrated from France with the Huguenots near the close of the 17th century. At Zurich and Heidelberg he studied medicine, afterwards, in Munich, natural history and philosophy. A description of 116 species of fishes collected by Spix in Brazil, was published by him in 1829—1831. From 1833 to 1842 he published (with C. Vogt and E. Desor) a work on fossil fishes, from 1839 to 1845, one on the fresh water fishes of Central Europe, and in 1844 one on British fossil fishes. In 1840 appeared his *Etudes sur les glaciers*, which was followed in 1847 by his *Systeme glaciaire*. He arrived in the United States in 1846, became professor of zoology and geology at the Lawrence Scientific School at Cambridge, Mass., was in 1852 to 1857 in a similar capacity in Charleston, S. C., being in the meantime engaged in scientific labors in connection with the coast survey, and afterwards accepted the chair of zoology and geology at Harvard University, where he labored successfully until an attack of paralysis terminated his career. His journeys to Lake Superior, to Brazil, etc., his contributions to the natural history of North America, and other works from his pen, are monuments which will always keep his name among those of the most faithful devotees to natural sciences.

CATALOGUE

OF THE

Class of the Philadelphia College of Pharmacy,

FOR THE FIFTY-THIRD SESSION, 1873-74

With a List of their Preceptors and Localities

MATRICULANTS.	TOWN OR COUNTY.	STATE.	PRECEPTOR.
Acker, Louis K.	Phillipsburg,	Pennsylvania.	George R. Vernon.
Ackermann, David,	Bangor	"	R. Shoemaker.
Allen, James A.	Phillipsburg,	New Jersey.	Dungan, Wheeler & Pape.
Bakus, Edmund.	Cincinnati,	Ohio.	Isaac W. Smith.
Baldwin, James H.	Kewanee,	Illinois.	S. M. Hurd.

Banks, Wm. B.	Philadelphia,	Pennsylvania.	Aschenbach & Miller.
Bantly, Bartholomew,	Milwaukee.	Wisconsin.	J. H. Tesch & Co.
Barndollar, Harry,	Danville.	Pennsylvania.	C. L. Cumming.
Barr, John Franciscus.	Lewistown,	"	H. C. Barr's Sons.
Barrere, George W.	Hillsboro',	Ohio	Charles Shivers.
Barth, Alfred,	Philadelphia,	Pennsylvania.	Henry Schmidt.
Beckert, T. F.	Pittsburg.	"	J. F. Caldwell.
Beecher, Benjamin C.	Philadelphia.	"	Hansell & Bro.
Beidler, Samuel M.	Juniata Co.	"	P. H. Horn.
Benseman, A	Minersville,	"	J. K. Burns.
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Blair, S. C.	"	"	W. R. Warner & Co.
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Boisnot, H. S.	"	"	Wm. Weber.
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Braddock, W. H.	Camden,	New Jersey.	L. Oberholtzer, M.D.
Brennan, Henry M.	Philadelphia	Pennsylvania.	Marcus Goldsmith.
Brown, Frank P.	"	"	E. Janvier, M.D.
Brown, J. R.	Cuthbert,	Georgia.	P. R. Holt
Bryan, Henry N.	Philadelphia,	Pennsylvania.	A. W. Duvall.
Buckingham, J. Harry.	"	"	Bullock & Crenshaw.
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Conrath, Frank,	Milwaukee,	Wisconsin.	O. A. Thiele.
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Ouram, Charles,	"	"	G. W. Ouram.
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Wilson, Alex.	Philadelphia,	"	Powers & Weightman.
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THE

AMERICAN JOURNAL OF PHARMACY.

FEBRUARY, 1874.

PHARMACOGNOSTICAL AND CHEMICAL NOTES.

By John M. Maisch.

Read at the Pharmaceutical Meeting, January 20, 1874.

It is desirable occasionally to call attention to drugs of handsome appearance and excellent qualities, if it be for no other purpose than to let the profession know how perfect a drug may be preserved, even in commerce, so as to represent all its characteristics and show any admixture if such should be present. These considerations induce me to notice two drugs, Pomegranate bark and Chiretta, which I recently obtained from Messrs Cramer & Small, of this city.

Pomegranate Bark usually occurs in our commerce in small fragments of quills, which rarely attain the diameter of a finger. The bark in question is in single and double quills, varying in length from two and a half to seven inches and from one-half to one inch in diameter. It has apparently been collected from the lower part of the trunk and the thicker roots, and agrees in all respects with the bark as usually seen in commerce and which is evidently collected from the smaller branches of the tree and root. Those quills, which are covered with a rather thick pale brownish-grey cork, more or less covered with irregular longitudinally cleft ridges, appear to me to belong to the root, while the trunk bark appears to have a thinner cork with the fissured ridges in more regular longitudinal direction, and a color more decidedly grey, varied by patches of blackish brown. It will be remembered that Dr. C. Harz stated* a few years ago that the commercial pomegranate bark is always the bark of the overground axis,

* American Journal of Pharmacy, 1870, p 220.

but is sometimes mixed with the root bark in variable proportions. Both barks are said to be alike active as anthelmintics, but the medicinal reputation appears to be based mainly upon the effects of the bark of the trunk and branches.

Chiretta is, according to our pharmacopœia, the entire plant of *Agathotes Chirayta* Don. As seen in commerce, it consists mainly of the roots and bare stems with a few fragments of the leaves and flowers or capsules still attached, while the far greater portion of these organs have been broken off. The specimen here shown is an original bundle, 32 inches in length, five inches in width and varying from one-half to one inch in thickness, thus presenting the form of an elongated parallelopiped in appearance: its weight is about one pound. The stems are folded back on themselves, so as to show principally the paniculate infloresence, composed of numerous umbel-like cymes situated along the branches. The bundle is tied at both extremities and in the centre with split cane, and the plant has the peculiar bitter taste to an intense degree.

A False Angustura Bark, which has been sold to a small extent in this city, was shown to me a short time ago. The small piece which I first saw was quite thin, covered with a greyish cork exhibiting patches of an orange shade, while the inner surface was of a dark brown, so as to present at first sight an appearance reminding of the bark of Strychnos nux vomica, which is usually designated as false angustura bark. The bark in question, however, is of such a fibrous texture that the idea of its probable identity with the strychnos bark is at once dispelled. The specimen here shown is in slightly curved pieces, seven inches and less in length, and one-eighth of an inch and less in thickness; intermixed with some half quills and a few quills. It consists altogether of the inner bark or bast layer, the outer bark having been thrown off by the cork. The suberous layer shows numerous small warts more or less confluent laterally, so as to form elevated patches, but mainly uniting in the direction of the axis to short, very irregular, longitudinal ridges. The cork is very soft, almost mealy, of a light brownish-grey color externally, and of a decided pale orange-rust-brown within. The surface layer being easily rubbed off, the orange tinted patches are easily explained; their color, however, is never of the bright orange-red of the patches upon the strychnos bark. The inner bark consists of a dark brown parenchyma, in which coarse, light colored bast fibres are imbedded in inter-

rupted tangential rows. The inner surface of the bark is of a blackish-brown color, very coarsely striated from the rather distant bast fibres, and often with patches of a soft wood closely adhering, which in some specimens has an almost copper-green tint. The bark breaks readily with a short but very distinct fibrous fracture, while the corky layer breaks much smoother, the bast fibres enclosed by it not protruding from the fracture to the same extent as those of the inner bark. The taste is purely bitter and devoid of aromatic properties.

It will be observed that this false Angustura bark differs very materially from both the true angustura and the strychnos bark. The former one of these two barks occurs in curved pieces, with a pale almost ochre colored cork, which is very friable and marked with suberous warts or by mainly longitudinal furrows. The inner surface is of a light brown-yellow, rather granular, not striate. The bark is very fragile and shows a smooth fracture in which are numerous white shining striæ of crystals.

The latter (strychnos bark) is covered with a warty light greyish or yellowish friable cork, with frequently very large orange-red patches; fracture nearly smooth, dark brown, divided by a lighter colored line into two layers; crystalline striæ absent; inner surface even, gray-brown to blackish-brown, finely striate.

I have no means of ascertaining the origin of the false angustura bark, described above; it most likely reached Philadelphia from New York.

Trompatilla, a Remedy for Hydrophobia.—Under this name was handed to me, by a friend, a sample of a drug which had been received by him from a friend residing in Mexico, where the article is said to be successfully used for the prevention and treatment of hydrophobia, for which complaint it is freely given in the form of decoction. It is stated to be obtained from *Bouvardia triphylla* and consists of short segments of the stem and branches, varying from one-fourth to three-fourths of an inch in diameter, terete and slightly bent. The bark is thin, fragile, brown and separates in a few pieces very readily from the wood, but adheres firmly to it in the largest number. The bark is covered with a comparatively thick layer of soft friable cork, which is rust-brown within, externally grey to blackish-brown and marked with numerous shallow longitudinal fissures. The wood is rather hard, but splits easily and straight in the direction of the axis;

it shows concentric, somewhat irregular, zones, resembling annual rings, and is radially very finely striate from the numerous very fine medullary rays. The duramen has a purplish-gray tint, the alburnum is yellowish-white. There is no perceptible odor to either wood or bark; the former is tasteless, the latter has a slight bitterish taste. The central pith is scarcely a line in diameter and of a brownish to purplish-brown color.

The genus Bouvardia belongs to the natural order of Rubiaceæ, tribe Cinchonaceæ, subtribe Cinchoneæ. De Candolle * enumerates eleven species, all shrubby plants and natives of Mexico, having the leaves either verticillate or opposite. The scars on the specimens in question are three or four in a whorl, indicating that the plant belongs to the former section and is most likely *B. triphylla*, Salisbury. The following description is translated from De Candolle (loc cit.)

Bouvardia Jacquini, H. B. K., small branches triangular; leaves somewhat rough, hairy beneath, smooth above, ternate, oblong, corymbs subtrichotomous; calyx lobes one-fifth the length of the roughish corolla tube; corolla red, the tube $\frac{3}{4}$ inch long; varies with the leaves pubescent and glabrous.

The following synonyms are mentioned in the same place: Ixora Americana, Jacquin; Ixora ternifolia, Car.; Houstonia coccinea, Andrews; Bouvardia triphylla, var. *a*., Salisbury, and Tlacoxochilt jasminiflora, Hernandez.

Picric Acid Mistaken for Santonin. A vial found in a closet in a drug store, was labelled santonin; the contents were crystalline, of a yellow color, and of an intensely bitter taste, which prevented it from being used as santonin, for the variety colored yellow by light it might have been taken on a superficial examination. It was handed to me for identification, and the investigation was performed at the College laboratory by Mr. W. L. Harrison of Petersburg, Va. The absence of santonin and of an alkaloid, especially berberina, was proven by appropriate tests, and the freedom from inorganic matter was established by incineration. The following summary gives an account of Mr. Harrison's examination.

The substance was in light yellow shining laminæ, taste very bitter and somewhat sour; it reddens litmus and melts, when slowly heated, into a brownish yellow liquid, which immediately becomes crystalline

*Prodromus, iv, p. 365.

on cooling. When slightly heated, it volatilizes unchanged; at a higher temperature it takes fire, burning with a yellow, very smoky flame and evolving irritating and very bitter fumes. It is soluble in cold water, forming a solution of brighter color than the crystals themselves; much more soluble in hot water, from which it crystallizes in thin long needles on cooling; soluble in oil of vitriol particularly when heated, and precipitated from the solution in the original state upon addition of water. With aqueous solutions of the alkalies it gives bitter deep red solutions. Its aqueous solution, treated with excess of ferrous sulphate, then with excess of caustic alkali, gives a filtrate of a deep blood red color, darker than the preceding with alkalies alone. When sulphuretted hydrogen is passed to saturation into a saturated alcoholic solution previously neutralized by ammonia, the liquid assumes an intense blood red color. These reactions and characteristics all correspond with those for picric acid.

ADDITIONAL NOTES ON PANCREATIN.

By Richard V. Mattison.

Read at the Pharmaceutical Meeting, January 20th.

Numerous inquiries regarding saccharated pancreatin, its doses, uses, &c., having been instituted since the publication of my last paper* upon the subject, induces me to present a few further remarks upon this valuable and highly interesting substance. This is a fine white powder, almost tasteless, or with the slightly sweet taste of lactin. When mixed with water it is perfectly soluble, dissolving in between five and six parts of that liquid, and forming a perfect emulsion when mixed with liquid fats and a small quantity of water.

I would respectfully suggest the following formula for the proper exhibition of cod-liver oil in combination with pancreatin:

℞.	Pancreatini Sacchar., . . .	℥j,
	Aquæ, ...	f℥iv,
	Sacchari Albi, ...	℥vij,
	Olei Morrhuæ, . . .	Oiss,
	" Gaultheriæ, . . .	gtt. xx,
	" Amygd. Amar. . .	gtt. v.

M.

*See American Journal of Pharmacy, 1873, Dec., p. 531.

Rub the saccharated pancreatin with the sugar and water, in a mortar, until a thick syrup is formed; to this add the cod-liver oil, in which the essential oils have been dissolved. This forms a perfect emulsion, without difficulty. It separates, of course, upon standing, but can easily be shaken together again, forming an emulsion with slight agitation. This is certainly to be preferred to the thick mucilaginous emulsions made with gum arabic or tragacanth, which are usually so distasteful to patients, because of their being so thick.

By the above formula a preparation can be furnished containing seventy-five (75) per cent. of oil, in the condition in which the oil, as usually prescribed, enters the duodenum, thus rendering its absorption and assimilation by the lacteals comparatively easy, the molecular formation of the oil being completely broken up. To make the emulsion whiter a little lime water may be substituted, omitting an equivalent quantity of water, a partial saponification rendering the emulsion more permanent and more elegant in appearance.

The easy assimilation of this preparation having been experimentally demonstrated by several of our eminent medical practitioners, it stands unrivalled in a therapeutical point of view as a standard pharmaceutical preparation of cod-liver oil.

The action of pancreatin upon albumen having frequently been stated, experiments were instituted in order to more closely examine this action. Accordingly, ten grains saccharated pancreatin were dissolved in one fluidounce of water, with the addition of six drops of hydrochloric acid. To this thirty grains of coagulated albumen were added, and the whole kept at a temperature of 100° F., being occasionally agitated. At the end of six hours about twenty-five grains were dissolved, thus showing the correctness of the usually received statement, and at the same time showing its great inferiority to saccharated pepsin, which under similar circumstances would have dissolved from 120 to 180 grains.

The action of pancreatin upon starch was next observed, and a drachm of Bermuda arrowroot was mixed with a solution of ten grs. of saccharated pancreatin in one fluidounce of water, and kept at the temperature of 100° F. for several hours. At the expiration of this time the mixture was filtered and the filtrate tested for glucose, abundant evidence of the presence of this substance being afforded by Trommer's and Fehling's tests. That this glucose was the product of the action of pancreatin upon starch was demonstrated by testing

the arrowroot, which gave a negative result, and by a comparative test with the solution of glucose obtained by the above action of the pancreatin upon the arrowroot. Fifty minims of this solution, containing less than one grain of lactin, reduced the cupric solution much more readily than a similar solution containing ten grains of lactin, the purity of both specimens of milk sugar having been ascertained before using.

Although the strength of saccharated pancreatin is given as "ten grains emulsify two fluid-drachms of cod-liver oil," yet when ten grs. were dissolved in one fluid-drachm of water, and one fluidounce of oil added, perfect emulsification was effected in a very few minutes.

The experiment of digesting the pancreas in cod-liver oil was tried, and with this is presented samples thereof.

The bottle labled No. 1 consists of a portion of cod-liver oil, in which a pancreas was digested with frequent agitation. As will be found upon inspection, the oil is much changed, having the appearance and smell of a badly oxidized oil. This change was very rapid from the moment of the introduction of the pancreas.

The bottle labled No. 2 consists of a portion of the same oil in which a pancreas was digested under precisely similar circumstances, with the exception of the addition of half a fluidounce of hydrochloric acid to the mixture. This sample will be found presenting the appearance of a fine oil, free from any indication of rancidity. When to this pancreatized oil a portion of water is added a perfect emulsion is formed, to which more oil may be readily added without disturbing the emulsion. It is, however, deemed inferior to the emulsion of oil prepared according to the directions given, in which such good evidence is afforded of the superiority of saccharated pancreatin.

Philadelphia, 1*st month*, 1874.

THE MORPHIA STRENGTH OF TINCTURE OF OPIUM.

By George W. Kennedy.

Tincture opium of our Pharmacopœia, when made of proper strength, should represent in each gallon the active ingred ents of ten troy ounces of the powdered drug; as opium varies in morphia strength, it is evident that the tincture must likewise vary; powdered opium is not used by apothecaries generally, but the opium as it is found in the market.* There is a serious objection to it as found in commerce,

* The Pharmacopœia directs the opium to be *dried and in moderately fine powder.*—Ed.

owing to the large per cent. of moisture it sometimes contains. I have found it to be adulterated with bullets and sand, which is something every apothecary is acquainted with, and there are many other things used for the same object, but these two came under my observation and are therefore noticed here. From one pound of opium I picked out two bullets weighing one and a half ounces, and about ha'f an ounce of small gravel stones. Opium costing nine or ten dollars per pound, would make lead and gravel very expensive, especially when you expect to get opium instead of bullets and sand.

I am not altogether in favor of making the tincture from the powdered drug, as that too contains a greater or less proportion of moisture, and will certainly cause the tincture and all of the opium preparations to vary much in morphia strength. I have exposed powdered opium to a temperature of 100° F., and kept it at that temperature until it ceased loosing weight, and was surprised to find the three different packages which I examined, losing 7·50, 9·10, and 8·20 per cent. of moisture. It has been a question with me, ever since I knew anything about the drug business, whether powdered opium as found in the market was free from adulteration. If the opium as found in lump is so much adulterated, it appears to me the powdered would be also; bullets and large stones could be easily picked out before pounding, but small gravel stones, cow manure, starch, and many other things could not; but still, careful wholesale dealers could, to a great extent, place a very good article of powdered opium in the market, when others would be only too glad to have anything ground up and sold as pure powdered opium, the adulteration of the powdered drug being more difficult to detect than it would be previous to powdering. The proper way to make tincture of opium, in my opinion, would be to make by assay, each fluid-ounce represent four grains of morphia, which would require the opium to contain 10·6 per cent. of morphia; then we would have preparations reliable and uniform in strength, and physicians would not be disappointed in the effects of the medicine, which no doubt is very often the case; but still it matters not with some apothecaries, whether the opium contains ten per cent. of morphia or two, so they have something that resembles laudanum, and enough of the odor to show that there is some opium in the preparation. This puts me in mind of an incident which happened when I was an apprentice, and inexperienced in the profession. My preceptor was a man who was very eager to make

money, a complaint we are all troubled with more or less, and one which the healing art may exhaust their whole catalogue of medicines and not succeed in curing; he made laudanum in this way: boil three ounces of lump opium in three quarts of water, with some powdered extract of liquorice, add one quart of alcohol, let stand a few days and filter; this he would call laudanum. The dregs were saved in accordance with his directions, and after collecting together the dregs of a few gallons of the tincture, he would order us boys to make another gallon of laudanum, so called, out of that. He frequently told his young clerks that there was a large per cent. of narcotina left in the dregs and it would not do to waste it by throwing them away, as its medicinal properties were similar to morphia and nearly equal in strength. I merely make this statement here to show what was sold in some shops as laudanum. I hope we have no apothecaries selling such laudanum in these days.

In order to satisfy my curiosity to know what was sold in some of the shops, I purchased two ounces from ten different stores; below will be found the result of my examination, showing the yield of morphia and narcotina in each fluid-ounce. The method adopted of assaying was that of Staples' process, which is the best adapted for the tincture.

The tincture was first evaporated in a capsule, by means of a water bath, to one-half, to get rid of the alcohol; it was then allowed to stand so as to get rid of a blackish resinous substance which is soluble in alcohol and insoluble in water; the aqueous solution was then poured off, and the black deposit was washed with water and filtered, along with the first solution, into a wide mouth bottle, an equal bulk of alcohol was added to the clear liquor in the vial, and then water of ammonia mixed with alcohol. The mixture was next agitated, the bottle corked tightly and set aside for three days. By this time the morphia will be found crystallized in the vial; the crystals were then detached from the bottle, the liquor agitated and poured upon a tared filter. There is always a small quantity of morphia left in the vial and that can be readily washed out with a small quantity of diluted alcohol, which served also to wash the morphia and filter; the morphia was then dried by a low heat, and weighed upon the filter. In order to prove whether the first weighing was correct or not, the crystals being easily removed from the filter, were weighed the second time, and no difference between the two weighings was observed. To

ascertain the quantity of narcotina present, the morphia was treated first with chloroform, and then with ether; after drying, the loss in weight would show the quantity present. In the table below will be found how much laudanum varied in morphia strength, as dispensed from different shops; I might say here that three of the purchases were made from houses that are known to sell cheap, and the others from reputable sources. Our dispensatory says that opium shall not contain less than seven per cent. of morphia, which would require the tincture to contain at least 2·62 grains to the fluid ounce.*

	Quantity of Morphia in one fluid ounce.	Quantity of Narcotina in one fluid ounce.
1	3.20	0.30
2	3.25	0.85
3	2.90	0.75
4	1.60	0.35
5	2.80	0.65
6	2.65	0.20
7	1.50	0.25
8	1.65	0.33
9	3.30	0.80
10	2.65	0.60

Pottsville, Pa., Jan. 14, 1874.

SYRUP OF WILD CHERRY BARK.

The following two communications on the above subject have been received by the editor:

I have used for some time the following formula for syrup of wild cherry, and think it preferable to any other:

Take of	Wild Cherry Bark, in moderately fine powder,	℥x,
	Bower's Glycerin,	f℥viii,
	Granulated Sugar,	℔iiiss,
	Water (Distilled),	q. s.

* The Pharmacopœia of 1860 required commercial opium to contain at least 7 per cent. of morphia. Allowing the opium to contain 20 per cent. of moisture, tincture of opium of the old Pharmacopœia should have contained not less than 3·28 grains of morphia in the fluid ounce. The requirements of the new Pharmacopœia for *dry* opium are 10 per cent. of morphia when worked by the officinal process, or 3·75 grains of morphia for one fluid ounce of the tincture. Morphia is not entirely insoluble in diluted alcohol and in ether containing alcohol; chloroform dissolves morphia in very appreciable quantity.—Ed.

Mix the glycerin with one pint of water; moisten the bark thoroughly, and let it stand in a close glass vessel for 24 hours; transfer to a glass percolator, pour on the remainder of the menstruum, and then water until two pints of percolate are obtained. Add the sugar to the percolate, agitating occasionally until dissolved. Three pounds of sugar in winter are sufficient.

This syrup keeps well, and gives more of the characteristic odor and taste of syrup of wild cherry than when made according to U. S. P.

Wm. H. Walling.

Philadelphia, Jan. 13, 1874.

Having formerly experienced considerable difficulty in obtaining a good syrup of wild cherry, I have been using the following formula for a year or more, and find it very satisfactory:

℞.	Ext. Pruni Virginianæ, . . .	f℥v,
	Sacchari Albi, ...	℔ii avd.
	Aquæ, ...	℥xi.

Make a concentrated syrup with the sugar and water, and when cool add the fluid extract and sufficient water to bring the measure to two pints.

M. H. E.

Philadelphia, Jan. 19, 1874.

Note by the Editor.—Regarding the last formula, we have to remark that neither the fluid extract of wild cherry of the former nor of the present Pharmacopœia agrees in composition with the syrup. The fluid extract of 1860 bears a closer resemblance to it than that of 1870; it is, however, of but about one-half the strength of the latter.

VASELINE.

By Adolph W. Miller, M. D., Ph. D.

Read at the Pharmaceutical Meeting, January 20, 1874.

Although this* is declared to be a full, clear and exact description, which will enable those skilled in the art to make vaseline, it nevertheless savors strongly of mystification, on account of its ambiguous terms and indefinite language.

In the first place, the residuum of petroleum is directed to be again subjected to distillation, either in the usual manner or in a vacuum

* See Minutes of the Pharmaceutical Meeting this number.

apparatus. It is not stated, however, what proportion is to be distilled off, at what temperature the distillation is to be interrupted, or what is to be the gravity of the distillate. On the contrary, the specification directs the application of sufficient heat to the residuum "to vaporize all the oil down to the residuum," the same term being employed to express two different substances.

The second step of the process is the filtration of the residue left in the still through prepared bone-black, for the purpose of decolorizing the product. This object seems to be but imperfectly accomplished, notwithstanding the patent steam filter and the patented method of preparing bone-black, as the color is stated to vary from a pure white to a deep claret.

The patentee lays great stress on the vacuum process, and he is no doubt correct in so doing. When making use of this, I would suggest that the most favorable point for interrupting the distillation will be just as soon as the distillate is free from odor, and nearly so from taste.

The consistency of vaseline is evidently of very little moment, as, by the patentee's own admission, it may vary from 20° to 34° Beaumé; the melting point is given as ranging from 85° to 110° Fahrenheit. These variations being quite considerable, it would seem that the word vaseline is intended by the patentee as a generic term for all heavy petroleum products purified in the above manner, rather than as a specific designation for a body of definite composition.

Vaseline is claimed not to contain paraffin. This appears to be so self-evident a prevarication that it would scarcely merit a refutation. No one disputes the presence of paraffin in the coal oil residuum; there is no provision in the patentee's specification for its removal or decomposition; hence, what becomes of it?

PHARMACY IN SOUTHERN ILLINOIS.

By A. G. F. Streit, Ph. D.

Abstract from the Annual Report of the Secretary of the St. Clair Pharmaceutical Association of Southern Illinois.

I. *Foundation of the Association.*—We all know well enough that the science and art of pharmacy, from its earliest establishment on this continent up to the present time, is not and has never been what it should be and what it is considered to be in the older European

States. It is consequently sunk to the level of the other commercial trades in this country. The causes of this sad and deplorable degradation of our noble profession in America are numerous, among which I will only mention the principal ones:

1st. The neglect of the pharmacist to respect his profession (lack of scientific self-respect), not only as a commercial but also especially as a scientific one: caused by the great deficiency in scientific education of many apothecaries.

2d. The erroneous ideas of our American people concerning ethics of trade and pecuniary compensation, especially as relating to the pharmaceutical profession.

3d. The most injurious, oppressive and overwhelming influence of the patent medicine system, which in no country of the civilized world has attained such dimensions as in the United States.

Want of intelligence and of scientific (pharmaceutical) education renders a large class of pharmacists unable to comprehend the great importance of pharmacy and its mission and standing among the other sciences, as well as the venerability which it should enjoy in the eyes of the public: they consider it to be a mere commercial business and totally disregard its scientific mission. This and the ruinous influence of the patent medicine trade are the principal inimical causes and powers which endanger the commercial and scientific elevation of pharmacy, and which therefore have diminished and endangered the scientific and commercial worth of our noble profession.

Hard will be the struggle against these powers—ignorance and quackery of every description—but nevertheless it is a holy struggle, to be accepted in the interest and for the welfare of pharmacy, and which undoubtedly must be taken up, at least by all well-minded members of the profession.

The existence of these dangerous evils, further the evidence that the influence of the same was growing stronger from year to year, endangering the life and the vitality of our profession, were sufficient to open the eyes of the thoughtful and honest pharmacists in our section of the country, and to exhibit the dangers arising from the permanence of the *status quo;* and in the year 1871 the earnest desire was expressed by many apothecaries of Belleville and the surrounding country to organize a pharmaceutical association for the southern portion of the State of Illinois.

But this desire remained only a project, and nothing could be accom-

plished in said year. Such was the condition of pharmacy up to the year 1873, when early in February the aspects for a union of pharmacists were getting more favorable.

After several preliminary conversations, a committee on organization was formed, an agreement of organization drawn up and at once signed by all the apothecaries of Belleville then members of said committee.

A circular was then issued by this committee, and sent to all the colleagues in the surrounding country, making them acquainted with the purpose of the proposed association, and calling them together to participate in its organization. The purposes and the necessity of such a society were not duly and earnestly enough considered and understood by the larger portion of the colleagues to whom these circulars were sent.

Of about 50 circulars sent off only a few were answered in the affirmative, and even of those few who answered them, two withdrew after the organization was accomplished and the necessary pecuniary assistance called for.

Nevertheless this may be considered a most fortunate occurrence, which need not be deplored. It is the best proof of their incapacity, lack of manliness, and of indifference towards the welfare of the profession, its elevation and future progress. Such elements, indeed, can never benefit an association; they generally prove to be of an unsteady and quarrelsome nature, endangering the peace, prosperity and future existence of a body.

After the completion of the necessary preliminary labor, the meeting of organization was held April 23d, and the name of the St. Clair Pharmaceutical Association of Southern Illinois was adopted in honor of the county in which it originated.

After the adoption of the constitution and by-laws, the following officers were elected: President, N. T. Baker; Vice-President, Wm. Feickert; Secretary, A. G. F. Streit; Treasurer, A. Rudolph.

Associations are often formed with a view to pecuniary gain or for social purpose, and therefore the membership of such organizations increases faster than of scientific bodies. This idea of receiving direct pecuniary benefit is likewise prevalent among many apothecaries, and therefore they refrain from joining scientific bodies. Another reason is the great deficiency of their pharmaceutical, scientific, sometimes even general, education, not enabling them to converse intelligently with other colleagues on scientific subjects.

II. *Operations of the Association during the First Fiscal Year.*—The Association was chartered May 20th, 1873, and the charter transmitted to the Secretary by the Hon. George H. Harlow, Secretary of State, soon afterwards. A proper seal was procured. A second circular was then issued by the Association, and sent to all the apothecaries of the southern portion of the State, declaring as northern boundary, inclusive, the counties Pike, Scott, Morgan, Sangamon, Macon, Piatt, Champaign and Vermillion, and explaining therein the necessity of a union of pharmacists, making them also acquainted with the objects of the Association, and inviting them to join it in membership. Over 500 copies of this circular were sent off, but only few answered, a most deplorable proof of the want of interest for the welfare of the profession, and also of the insufficient pharmaceutical and general education of a large class of apothecaries in this section of the country.

Since July the Secretary entered into correspondence with various pharmaceutical societies of the United States, England, France, Germany and Switzerland.

The diploma of membership was then executed and distributed to the members.

Scientific deliberations could not be held, all meetings being occupied with business transactions such as generally arise immediately after the organization of a body. It is hoped that next year much more will be accomplished in the scientific department.

The meetings, excepting that of organization, were held at the Secretary's office. Should the Association increase sufficiently in membership, it is contemplated to engage another locality.

III. *Future Aim and Operations of the Association.*—The future aim of the Association is considered to be the foundation of a college of pharmacy, to be located in the city of Belleville. Although the Association is not prepared at present to carry out this project, it will nevertheless not harm to consider it as a future probability, when time and circumstances will be more favorable to the execution thereof. The founders of the Association have well and earnestly considered all these matters at the organization of the body; they did not shut their eyes to the great difficulties connected with the establishment of a college; but, notwithstanding, they did not hesitate to introduce this future object in the statutes, in order to call the atten-

tion of the public at large and the profession in special to this final aim.

It is most certain that the erection of a college of pharmacy in this section of the country is only a question of time, and when the proper time will have arrived the Association will be prepared and able to protect and assist the undertaking.

For the execution of all these designs the strongest and strictest union of all the apothecaries of Southern Illinois is undoubtedly necessary. Scientific and commercial jealousy amongst the members of our profession should never exist, as this may be considered the root of all the evils mentioned before, and which have endangered the scientific, commercial and social standing of the profession, and have led to its degradation in the eyes of the public. For the reason that we have not been united, the public has seen our weak points, has trampled and imposed upon us by disrespecting our profession, and in not acknowledging the important and difficult duties laid upon it. Let us, therefore, change these things, while they lie within the reach of our power, and before it may be too late; let us not shut the eyes to the great dangers arising from a permanence of such evils. Let us labor earnestly and honestly, like men. Let us look at the condition of the profession in the European States, its high and honorable standing in the community, and, although we cannot have everything here as it is there (viewing the political and social differences of those States), let us at least adopt here what is adaptable to American ideas and views.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Sugar in Leaves.—M. A. Petit has, on a former occasion, stated that the leaves of the grape vine contain from 20 to 30 grams of glucose, and 13 to 16 grams of tartaric acid per kilogram. The author now states that the greatest portion of the acid is in the state of cream of tartar, about one-third only being uncombined, and that the sugar consists of cane and invert sugar. On treating the liquid repeatedly with animal charcoal, it is readily obtained colorless and free from tannin; for one kilogram of leaves the author obtained then 9·20 grm. cane sugar and 26·55 grm. glucose; by another experiment 15·80 grm. cane sugar and 17·49 grm. glucose.

The leaves of the cherry and peach likewise contain a mixture of the two sugars; from one kilogram of the latter 33 grams of cane sugar and 12 grams of glucose were obtained.—*Journ. de Pharm. et de Chim.*, 1874, *Jan.*, 41.

Caryophyllic acid, $C_{20}H_{32}O_6$ ($O = 16$).—This new acid is obtained by gradually adding caryophyllin to fuming nitric acid, kept cool by immersing the vessel in water until crystals begin to separate. After cooling, the crystals are drained, and then purified by dissolving them in ammonia and precipitating by hydrochloric acid, and subsequently by repeated solution in alcohol and precipitation by water. It crystallizes in white needles, is readily soluble in alcohol, ether and acetic acid, but nearly insoluble in water. Its solutions in alkalies are of a yellow color and foam like soap water. It is at first tasteless, afterwards bitter. The amorphous sodium salt has the composition $C_{20}H_{30}Na_2O_6$.—*Archiv d. Pharm.*, 1873, *Nov.*, 392—397.

Analysis of Extract of Meat.—Professor Reichardt has recently again analyzed the extract of meat prepared by Buschenthal & Co., of Montevideo, on which he reported in 1870.* For comparison we give his results in the following table, No. 1 being his analysis of 1870, No. 2 of 1873, and No. 3 his analysis of the Fray-Bentos extract:

	I.	II.	III.
Soluble in 80 p. c. alcohol,	80·76—81·24 p.c.	80·15 p.c.	81·5 p. c.
Amount of water (loss at 110°C).	16 —17 "	15·92 "	16 "
Fat and albumen,	None.	None.	None.
Soluble in ether,	0·20 "	0·19 "	?
Nitrogen,	9·56— 9·99 "	9·47 "	9·51 "
Ashes,	21·36 "	21·3—21·37 p. c.	—
The ashes contained	Phosphoric acid.	Potassa.	Soda.
in 1870	6·1	9·0	2·3
in 1873	5·92	8·87	2·46
"	6·09	8·89	2·10

This extract, therefore, retains its character for purity.—*Ibid.*, 399—402.

Adulteration of Lycopodium.—M. Paul Cazeneuve states (*Répertoire de Pharmacie*, N. S., i, 630) that he has been supplied with a

* See American Journal of Pharmacy, 1870, p. 320.

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quantity of pine pollen in the place of lycopodium. Having had his suspicions aroused by the yellower color, and smaller degree of mobility and fineness, he examined it under the microscope, and recognized in it the characters given as those of pollen of conifers, and especially of pine pollen, this latter being always constituted by two lateral cells near to a central cell, which is ruptured by the pollenic contents for fecundation. How this pollen is collected is matter for conjecture, but it may be obtained at a lower price than lycopodium, and M. Cazeneuve thinks it to be a substance worthy of further investigation. He has found that in the rolling of pills and plasters and the healing of chaps, etc., it presents the same advantages as lycopodium. It is nearly neutral; the tegumentary membrane has the cellulose nature of other pollens; it contains a little resinous matter, and the pine odor is faintly perceptible in a large quantity. The proportion of mineral matter is very small. One gram of pollen, dried in a water-bath, gave, when incinerated, 45 milligrams of white ash, composed of phosphates of potash and lime, and traces of sulphates and chlorides.—*Pharm. Journ. and Trans., Dec.* 20, 1873.

Action of Lead upon Water.—M. Dumas describes a former experiment in which five bottles containing leaden shot were partially filled with the following waters respectively: Distilled water, rain water, Seine water, Ourcq water and well water. It was found that the one containing distilled water showed in a very short time traces of lead in solution, whilst the waters charged more or less with calcareous salts contained none. The rapidity with which pure water acts upon lead is surprising, and the effect produced by traces of lime in preventing this reaction is not less so. It is impossible not to be reminded of Schlœsing's observations upon clay, which, in pure water, remains indefinitely suspended, but which is precipitated by the slightest trace of lime salts. The author thinks that pure water is an agent not yet perfectly known, and that its properties differ from those of common water more than is suspected. In the conversation which followed, M. Elie de Beaumont remarked that Schlœsing's observations explained fully the clear and sparkling character of calcareous waters.—*Chem. News, Dec.* 19, 1873, from *Comp. rend. Heb. des Séances de l'Acad. des Sci., Nov.* 10, 1873.

ON THE DETECTION OF AMMONIA.*

By G. C. Wittstein.

Scientific journals have recently often mentioned Nessler's reagent for ammonia, which consists in a strongly alkaline solution of mercuric iodide in aqueous iodide of potassium. It is asserted to surpass in delicacy all other tests for this volatile alkali; my experience, however, does not coincide with these statements.

The well-known behavior of a solution of corrosive sublimate to ammonia was first recommended by Einbrodt† for the qualitative detection of ammonia, who likewise determined the necessary cautels. It had been supposed, up to that time, that the white precipitate, which is thus formed, was soluble in 600 parts of water, and not expecting a sufficient delicacy of the new test, I made some experiments,‡ which, however, proved that one-half of a millionth of free ammonia could thereby be detected, and that, consequently, white precipitate is totally insoluble in water. I then concluded my report with the following remarks: "There may be cases in which this delicate reagent for free ammonia will be unsuccessful. If, for instance, the liquid contains an iodide, the solution of corrosive sublimate will produce a yellowish precipitate, which disappears on agitation, without producing the reaction of ammonia, even though this compound may be perceptible to the smell. Continuing the addition of the corrosive sublimate, a permanent red precipitate of iodide of mercury occurs; the chloride of mercury, therefore, is decomposed by the iodide before it is acted upon by the ammonia, and the latter may, for this reason, be still recognized by its odor or by a glass rod moistened with acetic acid."

This observation may, I believe, now be more precisely explained as follows: the double iodide of potassium and mercury which is at first formed, is subsequently decomposed by the free ammonia, and iodide of mercury is separated as a red or yellowish red precipitate, from a concentrated solution, or in a very finely divided condition, so that only a more or less intense coloration takes place.

From the above observation and its explanation, it seems evident that Nessler's is by far less delicate than Einbrodt's test, and this

*Translated from Archiv d. Pharm., 1873, Nov., 397—399.

† Journal f. praktische Chemie, 1852, lvii, 180.

‡ Wittstein's Vierteljahresschrift, 1853, ii, 111.

conclusion is confirmed by the following experiment: Take two beaker glasses, each containing 100 c. c. of water, add to No. 1 successively one drop each of solutions of chloride of ammonium, caustic potassa, and corrosive sublimate, and to No. 2 one drop of solution of chloride of ammonium and five drops of Nessler's test. A white opalescence will be plainly observed in No. 1 as soon as the solution of corrosive sublimate has become well mixed with the liquid, while No. 2 will show neither turbidity nor coloration, even though the addition of Nessler's reagent be continued. The latter seems therefore to be superfluous as a test for ammonia.

PREPARATION OF KOUMYS.

H. & N. Schultze, of Berlin, give the following formula: Unskimmed cows' milk is mixed with a sufficient amount of sugar of milk to produce in the course of the subsequent fermentation in closed vessels a carbonic acid gas pressure of four atmospheres. Fermentation is induced by the addition of brewers' yeast, which has been thoroughly washed. The operation is commenced in open tanks, in which the mixture must be frequently stirred. One-half of the casein, which is separated, is to be skimmed off. While the fermentation is actively progressing, the preparation is drawn off into champagne-bottles, the corks of which must be securely tied down by string or wire. They must then be removed to a cool locality, so that the fermentation can be properly completed. Three varieties of koumys are prepared, which differ in the amount of carbonic acid gas with which they are impregnated; they result from varying the proportion of sugar of milk, which is originally added.

C. Schwalbe makes koumys, from condensed milk, in the following manner: 100 c.c. are dissolved in a small amount of cold water; 1 gram of lactic acid and ½ gram of rum are added, and the mixture is diluted with sufficient water to make it measure 1000 to 2500 c.c. This preparation is put into a Liebig's bottle and charged with carbonic acid gas. The bottle is to be kept in a warm room, and to be examined after three or four days. When there is an active evolution of froth, and when the curd is of a fine, granular consistence, the koumys is in the proper condition. It can then be kept for about eight days.—*Phila. Med. Times*, *Jan.* 3, 1874, from *Deutsche Industriezeitung*, p. 438, *Chemisches Centralblatt*, p. 568.

Adolph W. Miller, M. D., Ph. D.

AN EXAMINATION OF SOME SAMPLES OF HYDROCYANIC ACID.*

By A. Towerzey.

Some little time since, at the suggestion of Mr. Schacht, I submitted to a careful examination the hydrocyanic acid we were then using in his dispensary. As we half suspected, it proved to be distinctly below the standard strength.

The necessity of being very accurate, compelled me to make repeated experiments; and anxious for a variety of samples I applied to several chemists in the neighborhood, who very kindly acceded to my requests, and gave me the opportunity of more extended experience.

The results I am thus able to show will perhaps be interesting to the association, although I am well aware that this subject has frequently been treated by more competent observers. I may especially call to your recollection a communication by Dr. Tilden, published in the *Pharmaceutical Journal* of July 29th, 1871: also a paper read by Mr. Abraham before the Liverpool Chemists' Association on the 8th of May, 1873; and likewise Mr. Siebold's report on the "Purity of Commercial Specimens of Officinal Acids," which will be found amongst the transactions of the last meeting of the Pharmaceutical Conference; and I trust these gentlemen will forgive my saying that my results tend to corroborate theirs.

It is not necessary to say one word here concerning the preparation of hydrocyanic acid; indeed, the exact process does not seem to be of much importance, provided the solution contains 2 per cent. of real acid.

The Pharmacopœia gives two tests for estimating its strength. The cyanogen may either be precipitated and weighed as dry cyanide of silver or tested volumetrically with a standard solution of nitrate of silver. This latter was the method we preferred to adopt, and, in practice, found it convenient to employ a nitrate of silver solution of such strength that 40 c.c. would show 1 per cent. in 4 grammes of sample. (I say *we*, because throughout these experiments I was kindly assisted by Mr. Schacht.)

Briefly then, we dissolved 3·15 grams of dried nitrate of silver

* Read at a meeting of the Bristol Pharmaceutical Association, December 12, 1873.

in one litre of distilled water; 4 grams of each sample were carefully weighed in a balance capable of turning to one-tenth of a milligram, with all the expedition possible (a most important matter), and mixed with rather more than sufficient solution of caustic potash to convert all the HCN into KCN; our silver solution, contained in a burette, was then run in until the last drop produced a permanent faint opalescence in the liquid after stirring. The number of c.c. of silver solution required to produce this effect divided by 40 gave at once the percentage.

Our experiments, conducted I may say, with every precaution to avoid error, and repeated more than once, indeed, several times in every case, upon twelve samples of hydrocyanic acid, gave the following average results:—

So-called B. P. Acid.	
No. 1	1·92.
" 2	1·52.
" 3	1·36.
" 4	1·32.
" 5	1·262.
" 6	1·22.
" 7	1·165.
" 8	1·16.
" 9	0·26.
Acid of "Scheele's" strength.	
" 10	3·62.
" 11	4·02.
" 12	1·3.

The history, as far as we know, of these samples will serve to show how unfortunately unstable is this important remedy, and to indicate the necessity for special care in its management.

No. 1 was obtained from a wholesale house of deservedly good reputation, and examined *directly it arrived.*

Nos. 4 and 6 were samples of the same acid examined in the one case when the bottle was first opened, and in the other when the contents had suffered from the frequent removal of the stopper incidental to the dispensary.

Nos. 3 and 5 were kindly sent me by a friend, who appended the following remarks:—No. 3 "from a 40 oz. bottle, from which over 35 ozs. have been from time to time removed." No. 5. "First re-

moval from a 40 oz. bottle, which has been in stock several months, during which time, however, the stopper had not been withdrawn." "Both samples have been carefully preserved in bottles encased in blue paper, and kept in a cupboard in a cool underground cellar."

Nos. 2, 7, 8, and 9 were portions of the contents of dispensing bottles kindly given me by friends who share with us the desire for a more perfect preparation.

Of the three samples of "Scheele's acid,"

No. 10 had been in stock for several months, during which time the stopper had been frequently removed.

No. 11 was a fresh sample, obtained expressly for examination, and

No. 12 was an acid of unknown birth. Its owner regarded it as a curiosity, and, like most curiosities, it is only fit to be kept on a shelf.

Here, then, gentlemen, are nine samples of hydrocyanic acid, B.P., taken from various sources, and representing very fairly, I should say, the condition in which this medicine is generally met with.

It will be seen at a glance that no two samples are alike, and all, with one exception, considerably below the standard. That such should be the case must be regarded as a matter of grave importance; and the question so frequently asked before I ask once again—Can this variation in so important a remedy be obviated? There is no doubt it arises chiefly from the extreme volatility of the substance itself. This was brought home to us most convincingly during the conduct of our experiments. HCy is much more volatile than water, hence the slightest exposure does something to weaken the sample. I feel bound therefore to answer that I fear nothing can entirely prevent this unfortunate variation in commercial hydrocyanic acid. But I think at the same time that more may be done than is always done to limit this variation, and I hazard the opinion that a difference so great as that here shown ought not to exist in any neighborhood.

In the management of this chemical it is of the utmost importance that every chemist should test for himself the strength of his solution; without so doing he can know absolutely nothing of the real strength of the article sent him. But starting with an acid of full strength and keeping it under the most favorable circumstances, he may then have fair reason to expect success in his endeavors to render this powerful agent something like a reliable remedy in the hands of the medical man.

The method we have recently adopted is to purchase acid of Scheele's strength and reduce it to 2 per cent. Mixing some ten or twelve ounces at a time we keep this quantity in well-fitting stopped bottles (1 oz. capacity) protected from the light and in a cool place. One ounce only is brought into the dispensary at a time, and *is renewed every fortnight* provided it lasts so long. This insures a frequent supply of fresh stock. Whether this plan will answer all our expectations I am not yet able to say; still, after all, this is but an endeavor to make the best of a bad job. The object to be sought for is, I venture to think, some other cyanide that may be proved to be equal to the cyanide of hydrogen in medicinal value and superior to it in chemical constancy. The most promising substance we have yet examined is the double cyanide of zinc and potassium. It is a perfectly definite crystalline body, having the composition, $K_2Zn''Cy_4$. The crystals contain no water, and are so stable that they may be even fused without change. In its solution, moreover, the cyanogen appears to be very securely fixed, as the following experiment may serve to show. A sample containing (by calculation) 2 per cent. of cyanogen, was tested and found to yield exactly 2 per cent. A pint of air was then driven through the solution in small bubbles, and being again tested, it was found to be of precisely the same strength. A sample of B. P. acid was then treated, with this result—that whereas in the first case it was shown to be of exactly 2 per cent., after the transmission of the pint of air its per centage was reduced to 1·7. But although the cyanogen in this double cyanide is non-volatile, and to that extent more constant than in hydrocyanic acid, yet it is easily evolved by even the weakest acids, such, for instance, as may be presumed to exist in the stomach. In point of fact, hydrocyanic acid itself would be produced directly the remedy was swallowed. The crystals are prepared very easily by dissolving cyanide of zinc in aqueous solution of cyanide of potassium, in the proportion of one equivalent of the former to two of the latter; upon evaporation this yields beautiful octahedral crystals.

A solution corresponding with the strength of the B. P. acid is made with 2 grams of the salt, and 42·82 grams of water.

As to the medicinal value of this solution, I am, of course, not able to speak, but I scarcely think it could in any great degree differ from that of hydrocyanic acid.—*Pharm Journ.* (*London*) *Dec.* 27, 1873.

AMMONIO-CITRATE OF IRON.

By Charles Umney.

The variation in appearance of ammonio-citrate of iron, as met with in trade, must have been noticed by every observant pharmacist.

Since the time of its introduction into medicine by Béral, now about thirty years since, most manufacturers have adopted, notwithstanding the various officinal formulæ that have been published, one or other of the following methods for its production :—

(*a*). By dissolving metallic iron (nails) in a solution of citric acid by the aid of heat to the complete saturation of the acid.

(*b*). By adding hydrated ferric oxide to citric acid dissolved in about twice its weight of water, assisting its solution by the heat of a water-bath until the oxide is no longer dissolved, and is visibly in excess.

Solution of ammonia in both cases being added after filtration, to produce the double salt. By either method the result is very similar, the amount of anhydrous ferric oxide resulting from a calcination of the salt with free exposure to air from 30 to 31 per cent., and the appearance of the scaled product nearly or quite identical.

A review of the various formulæ that have been published in the London and British Pharmacopœias will serve not only to show the relative amounts of ferric oxide directed to be added to the citric acid, but also to indicate (when the examination of commercial specimens is brought forward) that obsolete processes are followed by manufacturers.

As this iron salt is almost universally used, it will be interesting at the same time to note the formulæ of the French Codex and the United States and German Pharmacopœias.

London Pharmacopœia, 1851. (*First Officinal.*)

Sulphate of Iron, ...	12 oz. Troy.
Carbonate of Soda, ...	$12\frac{1}{2}$ oz.
Citric Acid, ...	6 oz.
Solution Ammonia, (·960)	9 fl. oz.

British Pharmacopœia, 1864.

Solution of Persulphate of Iron (1·441) .	8 fl. oz.
Citric Acid, ...	5 oz. (Avoir.)
Sol. Ammonia, (.960) . . .	14 fl. oz.

British Pharmacopœia, 1867.

Solution of Persulphate of Iron (1·441) .	8 fl. oz.
Citric Acid, ...	4 oz. (Avoir.)
Sol. Ammonia, (·959) . . .	$19\frac{1}{2}$ fl. oz.

United States Pharmacopœia, 1873.

Citric Acid, . . .	5 oz. 360 grains (Troy).
Sol. Persulphate of Iron (1·320) . .	16 fl. oz.
Sol. Ammonia, . (·960) .	20 fl. oz.

French Codex, 1866.

Acid Citric, ...	100 parts.
Hydrated Peroxide of Iron, . . .	q. s.
Sol. Ammonia, ...	18 parts.

Add such a quantity of hydrated ferric oxide as will correspond to 53 parts of anhydrous oxide iron.

Pharmacopœia Germanica, 1872.

Citric Acid, ...	8 parts.
Oxide of Iron, ...	q. s.
Then add Citric Acid, . . .	1 part.
Sol. Ammon.	q. s. to saturation.

The following table, deduced from these formulæ, will show at a glance the relative amounts of anhydrous ferric oxide to the same amount of citric acid :—

	Citric Acid.	Ferric Oxide	
Lond. Pharm., 1851	100 parts.	57·3	Added as ferrous salt.
Brit. Pharm., 1864	"	33·4	Added as ferric salt.
" 1871	"	41·8	"
U. S. Pharm., 1873	"	40·0	"
French Codex	"	53·0	"
Pharm. Ger., 1872	"	?	"

The London and British Pharmacopœias describe the amount of ferric oxide resulting from incineration with free exposure to air, but the Codex and German and American Pharmacopœias do not state the amount of ferric oxide perfect specimens of their respective salts should contain.

Pharm. Lond.,	1851	34 per cent. Fe_2O_3.
Brit. Pharm.,	1864	26·5 "
" "	1867	27·0 "
U. S. "	1873	? "
French Codex,		? "
Pharm. Germ.,	1872	? "

Most of the recent formulæ have one feature in common, viz., the complete saturation of the acid by the oxide of iron, but the quantities ordered by each work with this object in view are very disproportionate.

The British Pharmacopœia, 1867, says, "*dissolve the citric acid in eight ounces of distilled water, and having applied the heat of a water-bath, add the oxide of iron, and stir them together until the whole, or nearly the whole, of the oxide has dissolved.*"

It is presumed that complete saturation is intended by the expression "*until nearly the whole of the oxide has been dissolved*," and that the amount of oxide produced by the precipitation of the persulphate of iron ordered is in slight excess of the quantity required for such saturation.

Be this as it may, upon referring to the Codex we find an amount of hydrated oxide ordered which shall be equal to 53 parts of anhydrous oxide, whereas the British Pharmacopœia, 1867, orders an equivalent of 42 parts only.

Practically I have found that the French Codex formula is much more like the basis of ammonio-citrate of iron of the best makers than is the British Pharm. formula, although fifty parts (half its weight) would more accurately represent the amount of ferric oxide (added as hydrated oxide) required to saturate 100 parts of citric acid than would *fifty-three* parts, as named by the Codex.

A comparison of the formulæ of the British Pharmacopœias of 1864 and 1867, as to the amount of ferric oxide added to the acid, and the amount stated to be left by calcination is most conflicting; for instance, the 1864 Pharmacopœia shows that for 33·4 parts ferric oxide to 100 citric acid, as much as 26·5 per cent. is left upon calcination, whereas that of 1867 indicates that from 41·8 parts added to the same amount of citric acid, 27 per cent. is left by calcination.

The mean of three analyses of ammonio-citrate of iron (B. P. 1867) gave ferric oxide by calcination 27·4 per cent., proving the accuracy of the present officinal test and the fallacy of the 1864 Pharmacopœia.

Of course it may so happen that the British Pharmacopœia does not intend that the acid shall be saturated with oxide, and has merely framed its formula with other objects in view.

If it were so contemplated I think a great improvement in the formula would have been made if a salt had been recognized that would have sealed easily, and represented the best specimens as met with in trade.

An examination of the ammonio-citrate of the leading London manufacturers indicates that at the present time uniformity is the exception rather than the rule; that the British Pharmacopœia scales are not to be met with; that the preparation of the London Pharmacopœia, or a modification of it, is still used; and that the *complete saturation* process is in some cases followed.

London Pharmacopœia, 1851, . .	34·0	(determined).
British Pharmacopœia, 1867, . .	27·4	"
Manufacturing Process (saturation)	30·7	"
Trade specimens, . . .	(1) 26·0	
" . . .	(2) 24·1	
" . . .	(3) 30·1	
" . . .	(4) 30·0	
" . . .	(5) 33·4	
" . . .	(6) 33·3	
" . , .	(7) 29·4	

As uniformity in all substances used in medicine is of vital importance I would suggest that at the earliest convenient date the use of ferric oxide sufficient to the complete saturation of the acid by the aid of a water-bath heat be recognized, and that the formula of the British Pharmacopœia be amended by substituting *nine and a half fluid ounces* of the persulphate of iron solution for the present quantity of eight fluid ounces, or as much hydrated ferric oxide to one hundred parts of citric acid as shall be equivalent to fifty parts (49·6) of anhydrous ferric oxide.

Laboratory, 40, *Aldersgate street, E. C.*

—*Pharm. Journ. and Trans.*, *Dec.* 13, 1873.

ON VARIOUS METHODS FOR THE PREPARATION OF BINIODIDE OF MERCURY.

By E. B. Shuttleworth

In devising or selecting a formula for the preparation of any compound there are three considerations which are essential to a correct and satisfactory conclusion. These are, that the contemplated prod-

uct be obtained (*a*) of the best quality; (*b*) at the lowest cost; (*c*) with the least trouble. As a general rule, the relative importance of these conditions is indicated by the order in which they are given; quality is, or should be, the great essential, while cost and convenience are of secondary consequence. Too often, however, this order is reversed, and all considerations are made subordinate to that of cost; but, in no case, can this be justifiable; it is only when the matter of quality is satisfactorily settled that we are at liberty to decide in favor of that process which promises to be the most economical. The question of economy is, however, to the pharmacist, a most important one, and, in cases of scarcity of material or high prices, merits his best attention.

A case in point is that of the red iodide of mercury—a compound which is almost invariably prepared by the pharmacist. The recent inflation in the price of iodide of potassium, and the high figure which it at present maintains, demand the utmost economy in its use. In view of this it may be opportune to review the various processes which have been devised for the preparation of the biniodide of mercury, so that we may be able to obtain the best results with the least possible expenditure of materials.

The first process which might be noticed is that in which the biniodide is formed by a direct union of the elements composing it. Mercury and iodide are triturated, or agitated together, a little alcohol being added to control the reaction. In inexperienced hands this process yields an imperfect product; is exceedingly wasteful and troublesome, and may be so dismissed.

A better process is that of the British Pharmacopœia, 4 parts of perchloride of mercury, dissolved in 60 parts of boiling water, are mixed with 5 parts of iodide of potassium, in 20 parts of boiling water. The iodide is, theoretically and practically, one-tenth of one part in excess of that actually required for the decomposition. Its object is to prevent contamination of the product with the mercuric salt. This excess appears useless, first, because, with any ordinary care, the operator can ascertain the moment the decomposition is complete; and, again, if any slight excess of mercuric salt happened to be present, it would certainly be removed in the subsequent copious washings to which the biniodide is subjected. This excess is not only wasteful as far as the iodide of potassium is concerned, but of the biniodide also, as the latter salt is soluble in the former. The use of

boiling water is unnecessary, as the quantity ordered would, if cold, dissolve the salts readily. The precipitate from a hot solution is more granular than that from one which is cold, and for the preparation of ointments it will be conceded that the finer and softer salt is to be preferred.

In the process of the U. S. Pharmacopœia the excess of iodide is the same as that of the B. P., but cold water is applied for solution.

The most satisfactory and economical results I have obtained from the decomposition of the salts alluded to, have been by employing 4 parts of the mercuric salt, in powder, dissolved in 64 parts of cold water, adding a sufficient quantity of solution of iodide of potassium (4·9 parts in 10 parts of water). The yield will be 6·7 parts of a salt sufficiently dry to be pulverulent. This is very little short of the theoretical yield; 271 parts $HgCl_2$ require for decomposition 332 parts KI, and should produce 454 parts (6·701) HgI_2.

Another method which may be easily and economically pursued is that in which iodide of iron is used instead of iodide of potassium. The relative prices of iodine and iodide of potassium are generally as 21 to 19, and 254 parts iodine are equal to 332 of iodide of potassium. If, therefore, we mix 3·75 parts of iodine with 4 parts of cold water and sufficient iron wire to saturate, allowing the mixture to stand for several hours, heating towards the close of the reaction, we shall obtain a solution of iodide of iron equivalent in iodine strength to the quantity of iodide of potassium required to decompore 4 parts of perchloride of mercury. The yield will be about 6·7 parts, and the quality of the product is equal to that produced in any other way, but the precautions of using the iron solution as soon as possible, and of washing the precipitate as soon as deposited, must be observed; otherwise the product might be contaminated with a basic ferric chloride, which in time is thrown down. It will be seen that this method is as economical as could well be devised; the operator getting the profits of the manufacturer of iodide of potassium, minus the labor of the former in making the iodide of iron.

The last process which we shall notice is that devised by Mr. Williams, described in the "Chicago Pharmacist." In this, the use of a large quantity of water, for the solution of the mercuric salt, is obviated by employing a concentrated solution of chloride of ammonium, in which the mercuric salt dissolves readily. Four parts of perchloride of mercury are dissolved in four parts of water to which 2 parts

of chloride of ammonium have been added, 5 parts of iodide of potassium are dissolved in 5 parts of water, and the solutions are mixed. It will be seen that, in this way, 9 parts of water suffice for solution, while, otherwise, at least 70 would be required. This is a great convenience, especially when large quantities are operated upon; but, according to trials which I have made, the method is not economical, on account of the biniodide being soluble in the solution of chloride of ammonium. By draining the newly formed salt, as soon as deposited, the loss may be rendered smaller than if water were at once added to the mixture; but the product will not exceed 6·150 parts against 6·701, the theoretical yield, or 6·700, the yield by the method with simple water. In large operations, some of this dissolved biniodide may be recovered by evaporating to dryness the drainings and first washings, washing away the deposited chloride of ammonium, and thus leaving the more insoluble biniodide. The operation must be performed quickly, or the biniodide will also dissolve. Williams' method cannot be recommended except where expedition and convenience are paramount considerations to that of cost. The product is of a darker color and more granular than by other methods, and somewhat resembles that prepared by the old Edinburgh process, in which the compound formed by a direct union of mercury and iodine is dissolved and crystallized from a solution of chloride of sodium.

A word in regard to Williams' method for purifying the green iodide of mercury. I have lately tried this plan and found it to work very satisfactorily, being equally efficient, quite as convenient, more expeditious, and much more economical than the process with alcohol. The washing may be best performed by repeated agitation and decantation, using fresh solution of chloride of sodium.—*Canadian Pharm. Journ., Dec.*, 1873.

PREPARATION OF CARBOLIZED RESIN CLOTH.*

By Edward Lund, F.R.C.S.

The author having found some difficulty in preparing the antiseptic carbolic gauze recommended by Professor Lister (see Pharm. Journ. [3] vol. iii., p. 41) in the way indicated by him, has sought to modify the process by taking advantage of the property possessed by carbolic acid, and first pointed out by Professor Lister, that it can be

* *British Medical Journal,* Dec. 6, p. 654.

combined with resin and resinous matters generally with great facility, and that when so combined nearly all its irritating acrid properties are neutralized, while the resulting compound retains the power of evolving an antiseptic vapor at the temperature of the body. It is well known that to touch the mucous membrane, or even the skin of the lips, with pure carbolic acid, occasions pain and excoriation, but the author found, in experimenting on a mixture of one part of carbolic acid and five parts of resin, that all the acridity was destroyed, the acid being still present, but stored up and rendered harmless by the new combination. He, therefore, came to the conclusion that this property allowed of the easy preparation, without the aid of heat, of a valuable application for antiseptic purposes in surgery; all that would be required was the saturation of a very thin calico gauze with a mixture of resin and acid dissolved in methylated spirit, and drying it quickly after pressure had been applied to it. But the compound of resin and acid thus left on the threads of the calico after evaporation was found to be too brittle and adhesive for a wound covering, and therefore to impart flexibility castor oil was added, as being the only accessible fixed oil entirely soluble in spirits of wine. The author finds that some samples of castor oil, in consequence of adulteration, are not entirely soluble in alcohol, but he is content to use an oil that will unite with twice its bulk of rectified spirit. Mr. Lund thus describes the proportion of the ingredients and the preparation of the antiseptic cloth:

"Carbolic Acid Crystals melted, . .	2 fluid ounces.
Castor Oil, ...	2 " "
Purified Resin, by weight, . . .	16 ounces.
Methylated Spirit, ...	40 fluid ounces.

Mix.

"To dissolve these ingredients easily, we must add them together in a certain order. To the resin, liquefied by heat and removed from the fire, add one-third part of the spirit; when these are well mixed, put in another third of the spirit, in which the oil has been previously dissolved; and, lastly, the acid in the remaining portion of the spirit must be slowly added to complete the mixture. The whole must be agitated until all the constituents are thoroughly incorporated and afterwards passed through a muslin filter to get rid of any extraneous matters. If this plan be not adopted, the resin will concrete into a mass at the bottom of the vessel, and it will be extremely diffi-

cult afterwards to get it perfectly mixed. When thus prepared, the solution is of a dark color, clear and free from any deposit; and it can be kept unchanged, in a well corked bottle, for a long time. It is, in fact, a kind of thick varnish. To make the resin cloth, as I term it, for the sake of distinguishing it from the cere-cloth dressing for wounds, which I described in a paper read at the Leeds meeting of the British Medical Association in 1869, it is needful to select a very thin, cheap, porous calico or calico-muslin, known in the trade as 'mulls,' which costs at wholesale price about four shillings per piece of twenty yards. This, divided into strips, each about nine inches wide and six yards long, is reduced to a convenient form for general use. The calico should be unbleached and free from stiffening, and each of the strips should be carefully folded up, so as just to lie flatly in the press, as I am about to explain.

"An ordinary square tincture press may be used to press the cloth, or such a press as is sold for copying letters, to which a tin box has been adapted, so that the plates of the press can work in it; and into this box the folded calico is placed, the solution being poured over each successive layer, so as to wet perfectly every part of it. There should be an aperture at the bottom of the box, with a tap by which the superfluous fluid can be removed, collected and used a second time. The press being brought into action, the pile of calico should be squeezed as dry as possible, all the fluid drained off, the resin-cloth taken out, laid over a few lines of string in a warm room with a good ventilation; and in an hour or two, when all traces of smell of the methylated spirit have departed, the cloth may be rolled up and kept in tin cases ready for use.

"It is difficult for me to state the exact cost of resin-cloth made by this process, for I have not yet bought the materials for its preparation at such prices as could be had if it were to be manufactured in large quantities; but, allowing for some slight reduction, where six or eight twenty-yard pieces of calico are bought at a time, and the solution made by the gallon, I find it comes to a fraction less than threepence per yard of average width of 44 inches. In using it as a dressing for wounds, I deal with it precisely as I would do with Mr. Lister's antiseptic gauze, for which it must be taken as a cheap and ready substitute. I generally apply ten folds of it over the face of a wound, as in an amputation, and perhaps six folds higher up the limb for some distance, and I cover it with the macintosh hat-lining, so as

to distribute the serous discharges through the breadth of the resin-cloth thus covered. I have never found it to irritate the skin in any degree beyond what the oiled silk (protective), liberally used, could control; except once, when, in the hurry of preparing the resin-cloth, I had neglected to dry it thoroughly, and it was applied, still moist with the methylated spirit, the naphtha in it seeming to be the chief cause of the skin irritation. But if this precaution be observed, I believe this resin-cloth will be found a very useful addendum to our means of treating wounds and abscesses on antiseptic principles."—*Pharm. Journ., Dec.* 20, 1873.

Minutes of the Pharmaceutical Meeting.

The regular monthly meeting was held January 20th, 1874. On motion, Peter Williamson was elected President, and the minutes of last meeting were read and approved. Among the members from a distance present was Mr. Chas. A. Heinitsh, of Lancaster, Pa.

Mr. C. A. Weidemann, on behalf of Mr. Geo. R. Mariner, presented for the College Library a volume, entitled "The Modern Practice of the London Hospitals, Dublin, 1772."

The reading of papers being next in order, Dr. A. W. Miller had the specification read which forms part of letters patent No. 127,568, dated June 4, 1872, and issued to Robert A. Chesebrough, of New York, and then read an article on Vaseline, which will be found in another place in the Journal.

Richard V. Mattison read a paper on Saccharated Pancreatin and the Emulsion produced by the use of it and Cod Liver Oil, which will be found elsewhere in this number.

A. P. Brown, of Camden, stated that he had used saccharated pancreatin, and that physicians whom he had supplied with it had used it successfully. At the suggestion of one of his medical friends, he had treated the Parotid gland by a process similar to that used for extracting pancreatin, and obtained a product which possessed in a degree the properties of pancreatin.

Prof. Maisch presented specimens and read some pharmacognostical notes on *Cort. Granati, Chiretta, Trompatilla* (a new remedy from Mexico, and said to be successfully used in the treatment of hydrophobia), a new false *Angustura, Bouvardia triphylla,* and a report of an examination of a substance presented to him, which proved to be carbazotic acid.

Dr. W. H. Pile stated that he had made some phosphoretted resin according to the formula published by A. W. Gerrard, in *Pharmaceutical Journal,* December 6th, 1873, and republished in *Am. Journal of Pharmacy,* January, 1874. He confirmed the statements made by the author, recommended the preparation, and laid particular stress on the directions to conform to the temperatures given in the process.

Edwin McC. Boring presented samples of Castile soap, and said that he had successfully cut very hard soap by previously heating the bars in an ordinary oven to between 150 and 200° F., care being taken not to leave them in long enough to make them too soft.

Prof. Maisch called the attention of the meeting to the circular issued by the American Pharmaceutical Association, containing the report of the Committee on Elixirs, John F. Hancock, Chairman; and he urged the adoption of the formulas in order to secure uniformity. An extract of the report, giving the formulas, will be found below:

Compound Powder of Cochineal.

Take of Cochineal in Powder,	120 grains.
Alum, in powder,	120 grains.
Carbonate of Potassium,	120 grains.
Bitartrate of Potassium,	240 grains.

Mix. Keep in well-stoppered vial.

Compound Tincture of Cochineal.

Take of Compound Powder of Cochineal,	120 grains.
Diluted Alcohol,	2 fl. ounces.

Slightly warm the diluted alcohol and mix with the powder, macerate in a stoppered vial for twelve hours, and filter for use. This is permanent, and imparts a beautiful red color to elixirs and solutions which have no acid properties.

Spirit of Orange.

Take of Oil of Sweet Orange,	1 fluid ounce.
Stronger Alcohol,	16 fluid ounces.

Mix. This is made in proportions to conform with the spirits of the U. S. P., and is a pleasant and convenient form of orange flavor.

Simple Elixir.

Take of Spirit of Orange,	½ fluid ounce.
Stronger Alcohol,	4 fluid ounces.
Cinnamon Water,	6 fluid ounces.
Syrup,	6 fluid ounces.

Mix.

This is a turbid mixture. For many purposes it is not necessary to filter before using, but generally it should be clear, particularly when used for physician's prescriptions, and in making some elixirs. Filtering paper pulp, made by beating scraps of chemically pure filtering paper in a mortar, in the proportion of sixty grains of paper to half fluid ounce of water, added to sixteen fluid ounces of the elixir, agitated briskly for a few moments, and filtered, renders the elixir perfectly limpid. The paper is free from the chemical objections urged against carbonate of magnesium, chalk, etc., which are frequently used as clarifying agents.

The very pleasant taste and odor of this elixir, its freedom from color and chemical impurities, commends it for general use as a medicating vehicle.

Red Elixir.

Take of Comp. Tincture of Cochineal,	½ fluid ounce.
Simple Elixir,	16 fluid ounces.

Mix.

This is sometimes preferred as a simple elixir because of its beautiful color.

Elixir of Calisaya Bark.

Take of Tinct. Cinchona, U. S. P., 1870,	22 fluidrachms.
Simple Elixir,	sufficient to make 16 fluid ounces.

Mix and filter. This contains *the virtues* of two grains of Calisaya bark in one fluidrachm.

Elixir of Calisaya Bark with Iron.

Take of Elixir of Calisaya Bark, . . . 15 fluid ounces.
Warm Distilled Water, . . . 1 fluid ounce.
Citrate of Iron, *soluble*, . . . 128 grains.

Dissolve the iron in the warm water and add the elixir. Filter if necessary. Each fluidrachm of the unfiltered elixir contains one grain of the iron salt, and the virtues of nearly two grains of Calisaya bark.

Compound Elixir of Cinchona.

Take of Compound Tinct. Cinchona, U. S. P., 1870, 22 fluidrachms.
Simple Elixir, . sufficient to make 16 fluid ounces.

Mix and filter. If not required for immediate use, this and also the Calisaya elixir should stand for about twelve hours before filtering.

Compound Elixir of Cinchona with Iron.

Take of Compound Elixir of Cinchona, . . 15 fluid ounces.
Warm Distilled Water, . . 1 fluid ounce.
Citrate of Iron, *soluble*, . . . 120 grains.

Mix. Proceed as for Elixir of Calisaya with Iron.

Elixir of Citrate of Iron.

Take of Citrate of Iron, *soluble*, . . . 256 grains.
Warm Distilled Water, . . . 1 fluid ounce.
Simple Elixir, ... 15 fluid ounces.

Dissolve the iron in the warm water and mix with the simple elixir. Filter.

Elixir of Pyrophosphate of Iron.

Take of Pyrophosphate of Iron, . . . 256 grains.
Warm Distilled Water, . . 1 fluid ounce.
Simple Elixir, ... 15 fluid ounces.

Make according to directions for Elixir of Citrate of Iron.

This is the same medicinal strength as Prof. Diehl's formula.

Elixir of Citrate of Bismuth.

Take of Citrate of Bismuth and Ammonium, . 256 grains.
Warm Distilled Water, . . . 4 fluid ounces.
Water of Ammonia (drop by drop), . sufficient.
Simple Elixir, sufficient to make 16 fl. oz. of finished elixir.

This is the same bismuth strength as Prof. Diehl's formula, viz., two grains of citrate of bismuth and ammonium in each fluidrachm.

Elixir of Pepsin.

Take of Saccharated Pepsin, Scheffer's formula, 256 grains.
Sherry Wine, ... 14 fluid ounces.
Simple Syrup, ... 2 fluid ounces.
Fluid Extract of Ginger, . . . 25 drops.

Dissolve the pepsin in the wine, mix the fluid extract of ginger with the syrup, and mix altogether. Filter if necessary. Contains two grains of pepsin to the fluidrachm.

Elixir of Valerianate of Ammonium.

Take of Valerianate of Ammonium in crystals, 256 grains.
Compound Tinct. of Cochineal, . . ½ fluid ounce.
Simple Elixir, ... 15½ fluid ounces.

Dissolve the valerianate of ammonium in two ounces of the simple elixir, and carefully add water of ammonia until the solution is exactly neutral to test-paper. Mix with the balance of simple elixir, and then add the compound tincture of cochineal.

This is the formula of Professor C. Lewis Diehl, with the exception of the

simple elixir. Notwithstanding this preparation contains a larger quantity than usual of the valerianate of ammonium (two grains of the salt in each fluidrachm), yet its unpleasant taste and odor is effectually masked by the fragrance of the simple elixir.

Elixir of Valerianate of Ammonium with Quinia.

Take of	Sulphate of Quinia, . . .	128 grains.
	Elixir of Valerianate of Ammonium, .	16 fluid ounces.

Mix. Filter if necessary. Sulphate of quinia is soluble in elixir of valerianate of ammonium to twice the quantity here ordered.

Compound Elixir of Sumbul.

Take of	Tincture of Sumbul (Brit. Ph. 1867),*	4 fluid ounces.
	Syrup, ...	4 fluid ounces.
	Compound Tincture of Cochineal, .	½ fluid ounce.
	Elixir of Valerianate of Ammonium, .	8 fluid ounces.

Mix.

The elixir is slightly turbid, owing to the resin of the sumbul, which, if filtered out, must lessen its medicinal powers. This is given as a type of *extemporaneous elixirs*, which should not be filtered, but dispensed with the direction, "*Shake the vial before pouring out each dose.*"

Elixir Pyrophosphate of Iron, Quinia and Strychnia.

(C. Lewis Diehl's Formula.)

He says: "This requires particular manipulation, which precludes the use of simple elixirs.

"The following formula, the result of concert experiments of my friend, Mr. E. Scheffer, and myself, has been used by me since autumn, 1869, and I can recommend it as uniformly successful, when the manipulations are carefully conducted:

Take of	Sulphate of Quinia, . . .	60 grains.
	Strychnia, ...	1 grain.
	Citric Acid, ...	5 grains.
	Stronger Alcohol, ...	3 fluid ounces.
	Spirit of Orange, . . .	80 minims.
	Syrup, ...	6 fluid ounces.
	Pyrophosphate of Iron, . . .	½ troy ounce.
	Distilled Water, ...	7 fluid ounces.
	Water of Ammonia, . . .	suf. quantity.

"Triturate the sulphate of quinia, strychnia and citric acid together, until minutely divided, then add the alcohol and spirit of orange. Warm the syrup slightly (to about 150° F.), and add to the turbid mixture, when, upon stirring, the mixture becomes clear. To this add the pyrophosphate of iron, previously dissolved in the distilled water, and finally, carefully add water of ammonia, drop by drop, until the elixir is perfectly neutral to test-paper; filter. The finished preparation has a greenish-yellow color, a pleasant flavor of orange, and is permanent."

Bitter Wine of Iron.

(James T. Shinn's Formula, slightly modified.)

We have had several years' experience with the following formula, and it has given entire satisfaction to prescriber, dispenser and consumer.

Take of	Sulphate of Cinchonia, . . .	45 grains.
	Sulphate of Quinia, . . .	15 grains.

* This is made by macerating and displacing two and a half ounces avoirdupois of powdered sumbul with proof spirit, so as to obtain one imperial pint (19 fluid ounces and 1½ fluidrachms U. S. measure) of tincture.—Ed.

Citric Acid, ...	60 grains.
Citrate of Iron, *soluble*, . .	240 grains.
Concent. Tinct. Fresh Sweet Orange peel,	3 fluid ounces.
Distilled Water, . . .	3 fluid ounces.
Sherry Wine, ...	8 fluid ounces.
Syrup, ...	2 fluid ounces.

Dissolve the sulphates and citric acid in two ounces of the water, and the iron in the remaining ounce of water; mix the two solutions, and add the other ingredients, previously well mixed together.

The only change from the original formula is in the kind and quantity of orange flavor, for which we claim an improvement. See *Proceedings of Amer. Pharmaceutical Association*, 1864, p. 234.

Elixir of Gentian with Iron.

Take of Extract of Gentian, . . .	128 grains.
Citrate of Iron, *soluble*, . .	128 grains.
Distilled Water, ...	1 fluid ounce.
Simple Elixir, ...	15 fluid ounces.

Dissolve the extract and iron in the water, *warmed*, and add the simple elixir; filter.

Elixir of Bromide of Potassium.

Take of Bromide of Potassium, . . .	640 grains.
Red Elixir, ...	16 fluid ounces.

Mix.

This contains five grains of the salt in each fluidrachm, and is given as a type. The red elixir does not seem to answer for the elixir bromide of calcium; caramel is a more suitable coloring substance for the calcium elixir. We prefer the simple elixir in this case, and to use no coloring substance.

Syrup of Licorice Root.

Take of select Licorice Root, in moderately coarse powder,	4 troy ounces.
Diluted Alcohol, ...	sufficient quantity.
Sugar, ...	12 troy ounces.

Moisten and pack in a conical percolator; macerate for 12 hours, percolate to exhaustion. Place the tincture over a water-bath until reduced to ten fluid ounces, filter, and then add the sugar; lastly, sufficient distilled water to make sixteen fluid ounces of finished syrup.

The syrup of licorice root, when carefully prepared, is more effectual and more convenient for masking the bitterness of quinia, than is the very popular "compound elixir of taraxacum," and being free from the stimulating influence of alcohol, which is present in the elixir, is well adapted for children. The proper proportions will be one grain of quinia (any salt of it) to the fluidrachm, and if those for whom quinia is ordered will take the precaution to chew a small quantity of licorice root previous to taking the quinia mixed with the syrup of licorice, in the proportions here recommended, scarcely any bitterness will be observed. As a matter of course, acids mixed with quinia and licorice syrup will immediately develop the bitter taste.

It has of late become fashionable to use glycerin as an antiseptic and solvent in elixirs, as well as other compounds of pharmacy, but our aversion to the general use of glycerin for internal administration, for various reasons, has prevented its introduction in our formulas.

The results of our investigations of liquid pepsin preparations will not warrant the introduction of more than the one formula, which is really a wine of pepsin, and has been found useful in many cases.

Mr. A. P. Brown stated that he had made some of these elixirs, and found them to answer their intended purposes well; the simple and red elixirs can be used as vehicles, and may be diluted with water without becoming turbid.

No further business coming before the meeting, it then adjourned.

JOSEPH P. REMINGTON, *Registrar.*

Pharmaceutical Colleges and Associations.

NEW YORK COLLEGE OF PHARMACY.—At the conversational meeting held January 8th, Dr. L. Feuchtwanger delivered a lecture on Alumina and its Products.

NEW HAMPSHIRE PHARMACEUTICAL ASSOCIATION.—About 50 pharmacists assembled at Concord on Jan. 22, with the view of organizing a State pharmaceutical association. The officers of the meeting were Dr. Ch. A. Tufts, of Dover, President; C. F. P. Hildreth, of Suncook, Vice-President; G. F. Underhill, of Concord, Secretary, and H. B. Foster, of Concord, Treasurer.

THE NEW JERSEY PHARMACEUTICAL ASSOCIATION will hold its annual meeting on Wednesday, Feb. 11th, 1874, at Kepler Hall, Jersey City, at 10 o'clock A. M., and have at the same time an exhibition of pharmaceutical preparations, appliances, &c., which promises to be of much interest, several New York wholesale houses having agreed to lend their assistance. It is also proposed to have an evening session, to which the public will be invited. The Association will, we understand, again endeavor to have a pharmaceutical law passed by the State Legislature.

CAMDEN PHARMACEUTICAL ASSOCIATION.—Our friends in New Jersey are very active. Besides the Association, embracing the pharmacists and druggists of the entire State, there are now two local pharmaceutical associations, one in the City of Newark, the other in the City of Camden, the latter having been organized Nov. 28th last, with the following officers: Thos. G. Rowand, President; Simeon Ringel, Vice-President; A. P. Brown, Secretary, and Jas. A. Armstrong, M.D., Treasurer. In the matter of pharmaceutical organizations, the State of New Jersey is now ahead of all other States of the Union, and with the activity displayed by them, their objects will doubtless be crowned with success.

MARYLAND COLLEGE OF PHARMACY.—At the regular meeting, held Jan. 8th, 1874, the following officers were elected for the ensuing year: First Vice-President, Joseph Roberts, Ph. D.; Second Vice-President, A. P. Sharp; and Messrs. F. Hassencamp and N. Hynson Jennings, members of Examining Board. The several standing committees were appointed, and a special committee to take into consideration the feasibility of building a suitable hall for the College, and to petition the Legislature for aid thereunto.

A special meeting was appointed for Wednesday, Jan. 14th, to take action on report of Committee on Revision of By-Laws, &c.

J. Newport Potts, Rep. M. C. P.

Cincinnati College of Pharmacy.—At the annual meeting, held Jan. 13th, the following officers were elected for the ensuing year: President, J. F. Judge; Recording Secretary, Jos. N. Feemster; Corresponding Secretary, Chas. H. Van Slyck; Treasurer, W. H. Negley; Board of Trustees, F. L. Eaton, J. D. Wells, T. L. A. Grere, Chas. Schmidt. The members of the Board holding over are Chas. Faust, Otto Taxis, John G. Fratz and A. J. Tully.

Reports of the Secretary and Treasurer were read and adopted. President J. F. Judge delivered a short address, congratulating the College on its success during the past year, the increase in the number of members and its satisfactory financial condition. The first course of lectures since the reorganization of the College was the session of 1871–72. It was attended by 32 students, most of whom were residents of this city. The second course, session of 1872–73, followed, with 51 students, a fair proportion of whom came from a distance, many from different points in Ohio; some from Illinois, Indiana and West Virginia, and one from Canada. Ten students of this course received the degree of "Graduate in Pharmacy." The present course is attended by 70 students. The increase in the number of students shows that the College is in a very healthy and prosperous condition. There are six lectures each week, delivered by gentlemen of long and practical experience, and give general satisfaction to the class. The following are the members of the faculty for the present year: J. F. Judge, M.D., Professor of Chemistry; E. S. Wayne, M.D., Professor of Materia Medica and Botany; W. B. Chapman, M.D., Professor of Pharmacy. The bill regulating the practice of pharmacy, which passed the Legislature last spring, has been promptly complied with; every retail druggist engaged in the business when the law went into effect has been registered, and many persons desiring to engage in business for themselves have appeared before the Examining Board. A large number of clerks have also been examined, most of whom passed very creditably.

A large number of donations of books, chemicals, etc., have been made to the College during the past year; many by our own members and friends of the College here, and quite a number from Philadelphia, St. Louis and other places; and though our friends have been very liberal, there still is room, and we hope for a continuance of the same. Any donations to the library or cabinet will be thankfully received, and may be sent at our expense, per express, addressed to any of the officers of the Association.

Chas. H. Van Slyck, *Cor. Secretary.*

Saginaw Valley Pharmaceutical Association.—At the annual meeting of the Saginaw Valley Association, held in East Saginaw, January 14th, 1874, the following officers were elected for the ensuing year:

President, Dr. S. S. Garrigues; Vice-President, L. Simoneau; Secretary,

J. F. Street, Bay City; Finance Committee—A. A. Dunk, East Saginaw, E. Aldridge, Bay City.

After the election of officers the subject of legislation connected with pharmacy came under general discussion.

Editorial Department.

Nostrum Quackery.—The "Atlanta Medical and Surgical Journal" for August, 1873, contains, under the above caption, an article which has evidently been written by one who has studied the subject with care, and approaches the question, not from the standpoint of partiality, but by searching for the causes in order to find a remedy for an evil which is spreading and increasing all over the world, and which the most stringent prohibitory laws of continental Europe have failed to suppress. The article in question is so free from the passionate condemnations which may be met with in many medical journals, and at the same time bears such strong evidence of its writer's full acquaintance with all sides of the complicated question, that we had hoped it would have received the attention of most medical journals, and thus originated a discussion from which the most beneficial results might have been expected. Thus far our hope has been disappointed.

In reproducing the article here, we believe that it will be read with that interest which the candor and frankness pervading it deserves:

Nostrum quackery has been so often the theme of essay and dissertation, we can scarcely hope to say anything new upon the subject, and yet it is of so much interest to the profession, and so nearly touches our daily occupation, that we may venture to throw out a few random thoughts for what they may be worth.

When we walk into our drug-stores and glance over their shelving, we are confronted everywhere with an army of nostrums which are evidently displayed for a purpose—they certainly *mean business.* If we should possess so far the confidence of the proprietors as to be permitted to inspect the ledger, we would probably find that the sales of these so-called remedies yield a large percentage of the profits of the business.

It is useless to blink the fact that these preparations, whether for weal or for woe, supply a great public want; *the people will have them*, in spite of all we may do or say.

It is notoriously true that all efforts thus far made by the medical profession to suppress the great and growing evil have most signally failed. Why is this?

There are many reasons which might be assigned, but for the present we shall confine our attention to two: 1. Nostrums supply a want which the community feel, and for which they are willing to pay their money; 2. The opposition of the medical profession to the sale of quack preparations is set down to selfish greed, and has not yet been divested of the *appearance*, at least, of self-seeking.

Until we of the profession are willing to place ourselves in a position of pecuniary disinterestedness, and, at the same time, to acknowledge and supply the want of the public for household remedies, we may as well 'bate our breath in the matter.

It is fairly objected to the present system of nostrum quackery that it is dangerous to the health and lives of the people, because the composition in constituents and quantities of its preparations is withheld from the profession and the public. If alarming symptoms ensue, there is no means of determining the agency of the medicine in the case. If serious illness follows, the attending physician is left in the dark as to the medicines which have actually been taken in the compound, and their probable influence upon the symptoms present.

These remedies are dangerous, because of the difficulty of effecting perfect combination of materials when operating upon a large scale, as witness the case of poisoning by "Mrs. Winslow's Soothing Syrup," at San Francisco and at St. Louis. They are dangerous, because of the liability to error incurred in the employment of cheap and unskilled labor for many of the details of manufacture in very large establishments.

They are objectionable, because there is no recourse to be had upon the manufacturer in a distant State, in the event of death or injury resulting.

In the way of *remedy* for these acknowledged evils, we suggest that the medical profession recognize the want of household remedies by publishing *authoritative formulæ* for the use of pharmacists, who may compound them at their counters and keep them on hand for the ready and convenient supply of *all the real wants* of families and of individuals in this direction.

Let vendors of patent and proprietary medicines and nostrums be required by law to fully and distinctly set forth upon their labels the names and quantities employed of all the materials used in the compound, together with a working formula; and let suitable penalties be attached to all fraud and deception with reference to the compound.

Moreover, let physicians encourage the establishment of small pharmacies in skilled hands, from which all nostrums which do not conform to the above requisitions are rigidly excluded; and when this is impracticable, let them attach dispensing apartments to their own offices. B.

We have but little to add to the foregoing at present; but we desire to state that we know of not a few drug-stores where one is *not* confronted everywhere with an array of nostrums; but we also know of others where gorgeous show cards are displayed in every nook and corner, and where handbills advertising all sorts of nostrums are freely distributed, practices which should be discountenanced. The preparation of household remedies by authorized formulas has been proposed years ago, without having met with the requisite support; we believe this course to be the only rational one calculated to be an entering wedge for the suppression of nostrum quackery.

A great deal might be said about the proposition to publish upon the labels of proprietary medicines the full working formulas. The proposition might be qualified to exclude all drugs which, if an overdose of the medicine be taken, would endanger the life or health of the patient, as in the cases above alluded to, or which are likely to create a morbid appetite for the ingredients, if continually used, like the stomach bitters, many so-called elixirs, &c.

Regarding the alternative proposition in the concluding sentence of the above article, we trust it may be long before the cure of one evil will be attempted by creating another.

In an editorial contained in the "Medical and Surgical Reporter" of Aug. 30, the true way to suppress quackery, in and out of the profession, is regarded to be by educating the people on medical subjects, and the establishment of a society in England is cited whose object is to supply this information to the

public by the distribution of gratuitous tracts on sanitary subjects. It is doubtless correct that the public needs correct information on hygiene and kindred subjects, which to the adult population can be supplied by pamphlets written in a plain and attractive style, and by popular lectures delivered by those who understand the art of expressing leading scientific principles in a plain and simple language, devoid of technicalities; but it seems to us that the introduction of this topic into at least the more advanced classes of our public schools could not but have the most beneficial results in the future.

Selling of Liquor by Apothecaries.—The readers of the "Journal" are aware that we are not an advocate of the selling of liquor as a beverage by apothecaries; but that we desire to have it restricted for medicinal purposes only. We have been taught to look upon Spiritus frumenti, Spiritus vini gallici, Vinum xericum, &c., as remedial agents, when prescribed by a physician, and likewise that the pharmacist is not responsible for mistakes or misuses by the patient of the prescribed medicine, provided the prescription has been accurately compounded and correctly labelled, and the dose ordered is not excessive. In this, however, it seems we have been mistaken. President Judge John Dean, of the 24th judicial district of Pennsylvania, which is composed of the counties of Huntingdon, Blair and Cambria, last fall sentenced several apothecaries of Tyrone for selling liquor without a license, and then made the following remarks, which we take from one of our cotemporaries:

> Druggists are authorized to sell liquor for medical purposes, *subject, however, to the risk of indictment.* A physician's prescription is not of itself a safeguard for the druggist. If the latter, *even on the prescription of a regular physician*, sells liquor to persons of known intemperate habits, or to those who are known to use liquor as a beverage, *he is liable to indictment*, and, if found guilty, *will be punished to the extent of the law.* In short, in the opinion of the Court, *a druggist who sells liquor for any purpose whatever, or upon the prescription of the most eminent physician of the country, does so at his own risk.*

We know nothing of the merits of the case or cases in question; but, with all due deference to the legal attainments of the learned judge, we would respectfully submit, that if the opinion of the Court be the law of the land, then it would be high time for pharmacists to critically examine every prescription, and to refuse to put up such as *in their opinion* might injure the patient, directly or indirectly, notwithstanding they have, until now, generally supposed that, from education and experience, the physician is better qualified than the pharmacist for the selection of the proper remedies in each special case. The confusion which would result from such a course, the dangers to which patients would be exposed, the uncertainty of the attending physician regarding the effects of the medicines furnished upon his prescriptions, and the abuses generally to which such a course would lead, are evils patent to all and so great that, as heretofore, the responsibility of prescribing the proper remedies must of necessity be left with the physician, while the accountableness of the pharmacist must be confined to the conscientious execution of the physician's order and the quality of the remedies furnished.

The Stamp Tax.—The Committee of the Philadelphia Drug Exchange, consisting of Messrs. Edward H. Hance and Alexander H. Jones, who had a hearing before the Committee of Ways and Means, as we informed our readers on page 43 of our last number, have reported on their visit and published the petition handed to Congress asking for the repeal of the stamp tax on medicinal preparations, and accompanied by a copy of the December number of the "American Journal of Pharmacy," as embodying upon pages 564—574 the views of all the pharmaceutical colleges and associations heard from until that time. The Committee state in their report:

It is to be remembered that, just at this time, suggestions were made looking toward *increased* taxation. The views of the Secretary of the Treasury and the Commissioner of Internal Revenue indicated a necessity for more revenue. and measures to increase the tax on whiskey and tobacco, to restore Schedule B, and to re-impose the duty upon tea and coffee, were discussed in official circles.

The instructions to *ask* for a total repeal, however, were strictly carried out, and the petitions asking for such repeal presented; but it was thought proper to state to the two Committees of Congress that if *all* could not be had, a *part* might satisfy the trade.

The Committee also refer to a letter, dated January 6th, from a member of Congress, stating:

Commissioner Douglass has not yet had an interview with the Committee.

The only expression I have heard has been one of respect for the weight of the petitioners, representing as they do all the States and Territories, and of the suggestions made by yourself and Mr. Hance. My judgment is that there is a general desire in the Committee to obviate the difficulty, if it can be done without opening a wide door to fraud, as I personally believe it can.

Also another letter, dated Washington, Jan. 10th, 1874, stating:

I am happy in being able to say that I believe the Committee of Ways and Means will embody a revision of that part of the Stamp Law, the modification of which is desired by the druggists, in their first Revenue Bill.

The following is an extract from a letter of Hon. W. R. Morrison, of Illinois, who writes to the St. Clair Pharmaceutical Association:

Petitions of a like character have been numerously presented during the present session of Congress. A delegation from Philadelphia, and perhaps from other cities, have been here and have had a hearing before the Committee, and the Commissioner of Internal Revenue is to be heard during the present week. It seems to be more the construction of the law (by the Commissioner) than the law itself which creates the hardships complained of. There seem to be very many interested beside yourselves, hence I think relief probable.

I shall be glad to further your interests to the best of my ability.

Pancreatin.—The "Boston Medical and Surgical Journal" for December 11, 1873, contains a paper by Dr. Horace Dobell, entitled "Pancreatin and its Usefulness," which is in answer to one by Dr. E. H. Hoskin, published in the same journal in June last, and entitled "Pancreatin and its Uselessness." It

appears that the latter has been mainly experimenting with the pancreatic preparations of Dr. Hawley, while the former, who proposed the medicinal use of pancreatic juice (see Amer. Journ. Pharmacy, 1866, p. 143) some eight or nine years ago, has employed it ever since, and his views are therefore entitled to high consideration. The preparations preferred by Dr. Dobell are those of Messrs. Savory & Moore, made by processes which we believe have never been published.

That pancreatic juice forms an emulsion with fat was observed forty years ago by Eberle, and Valentin discovered in 1847 that the same liquid readily transforms starch into glucose. Cl. Bernard, C. Schmidt and others subsequently showed that the pancreatic liquid, when in contact with fats, decomposes the latter into glycerin and the fatty acids; the precipitate obtained by alcohol in pancreatic juice was found to be not only soluble again in water, but to possess in a high degree the properties mentioned before, of converting starch into sugar and of decomposing fats. Vanden Corput afterwards used this alcoholic precipitate under the name of pancreatin, and recommended it in the form of emulsion, aqueous solution, powder, &c., generally combining it with alkaline carbonates or bicarbonates.

The process recommended by R. V. Mattison, in the December number of this journal, for the preparation of the emulsifying principle, is based upon its insolubility in concentrated solutions of chloride of sodium.

The only two processes, with which we are acquainted, for obtaining pancreatin in a probably not chemically pure, but at least in a concentrated condition, are so easily executed that we take occasion to suggest to our readers its preparation by both methods, with the view of having their efficacy and relative merit thoroughly tested by intelligent physicians, and then to report the results. This seems to us to be the proper way of saving a remedial agent of apparent merit from probable neglect, and at the same time supplanting with preparations of established composition others which, no matter how meritorious they otherwise may be, are made by processes kept secret, thus preventing or at least retarding desirable improvements. The experiments we think should be made with the pancreas of the various herbivorous and omnivorous domesticated animals, and the physician should be made acquainted with the kind employed by him.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Medical Lexicon—a Dictionary of Medical Science; containing a concise explanation of the various subjects and terms of anatomy, physiology, pathology, hygiene, therapeutics, medical chemistry, pharmacology, pharmacy, surgery, obstetrics, medical jurisprudence and dentistry; notices of climate and of mineral waters; formulæ for officinal, empirical and dietetic preparations; with the accentuation and etymology of the terms, and the French and other synonyms. By Robley Dunglison, M.D., LL.D. A new edition, enlarged and thoroughly revised by Richard J. Dunglison, M. D. Philadelphia: Henry C. Lea, 1874. Large 8vo, pp. 1131. Price: cloth, $6.50; leather, raised bands, $7.50.

As a standard work of reference, as one of the best, if not the very best

medical dictionary in the English language, Dunglison's work has been well known for about forty years, and needs no words of praise on our part to recommend it to the members of the medical and likewise of the pharmaceutical profession. The latter especially are in need of such a work which gives ready and reliable information on thousands of subjects and terms which they are liable to encounter in pursuing their daily avocation, but with which they cannot be expected to be familiar. The work before us fully supplies this want.

The title indicates the scope of the work, which is very extensive, embracing such a multitude of subjects and so many branches of science, that it is exceedingly difficult and next to impossible for one man to be equally posted in all and to keep up with the rapid progress made in the various departments; hence it is possible that, notwithstanding the most diligent research, old views may be retained occasionally or new facts overlooked or misconceived. In carefully going over the pages, we have observed but few cases of the kind, and mostly such of little importance. The origin of sumbul root has now been determined; it is yielded by Sumbulus moschatus. Rheum palmatum, undulatum and compactum do not yield the officinal rhubarb, the Pharmacopœia notwithstanding; it is most likely a new species, Rh. officinale, and, instead of a root, appears to be the ascending axis. Russian, or so-called Turkey rhubarb has long since disappeared from the market, and is now only met with in cabinets. The so-called Levant wormseed consists of the flower buds, not of the broken peduncles, of Artemisia cina. We should have preferred to find the chestnuts described under Castanea, instead of under Fagus; the leaves used for whooping cough are obtained from Castanea vesca, not from C. pumila. Viridia and veratroidia are names proposed for two alkaloids found in Veratrum viride; they do not occur in Sabadilla, and cannot, therefore, contaminate the officinal veratria. Pepsin is now obtained in this country by Scheffer's process, by precipitation with chloride of sodium, and is better than when made by the old process wth lead salt.

The revision of the present edition was commenced by the author of the work, and completed, after his decease, by his son, who has successfully endeavored to carry out the author's plan, to bring the volume up to the present time, and to retain for it the position of a work of satisfactory reference, which it has enjoyed for so long a time. Over 6000 new subjects and terms have been introduced, and, although the capacity of the page has been enlarged, the volume has been increased by one hundred pages.

The Tennessee Pharmacal Gazette. An eclectic monthly of practical pharmacy. Published by authority of the Tennessee College of Pharmacy and the Tennessee Pharmaceutical Association. Edited by Professors Benjamin Lillard and Thomas Black. Nashville. Monthly. Price, $1.25.

We heartily welcome this new pharmaceutical periodical, and trust that it may have a successful career. Judging of the large number of pharmacists and druggists in the United States, the pharmaceutical literature of the country has ample room for improvement and extension, not only in bringing out what is usually termed practical information, but also such which aims at rais-

ing pharmacy to the dignity of a profession, to something more than the compounding of drugs, of the nature of which frequently little is understood.

The first number, before us, is mainly occupied with the Proceedings of the Tennessee Pharmaceutical Association, whose organ it is, by short extracts, editorials, &c.

Galvano-Therapeutics. A revised reprint of a report made to the Illinois State Medical Society, for 1873, by David Prince, M.D., of Jacksonville, Ill. Philadelphia, 1873: Lindsay & Blakiston. 8vo, pp. 64.

This little work contains a great deal of information to the busy practitioner, and has evidently been prepared with much care, and with the material at hand well digested.

Proceedings of the Nebraska State Medical Society at its Fifth Annual Session, held in Nebraska City, Neb., June 3d and 4th, 1873. Omaha, Neb., 1873. 8vo, pp. 55.

The pamphlet contains the minutes of the Society, together with reports of some of the sections.

The Technologist, or Industrial Monthly. A practical journal for manufacturers, mechanics, builders, inventors, engineers and architects. Issued by the Industrial Publication Company, 176 Broadway, New York. Vol. V, 1874. 4to, 28 pages. Monthly. Price, $1.50 per year.

The number before us is filled with interesting matter, of the kind indicated in the title. The types are clear, the illustrations numerous and attractive, including two full-page engravings of a fan-blower, handsomely printed in colors, and the descriptions of apparatus and processes, the current notes and editorials are simple and practical.

A Universal Formulary: containing the methods of preparing and administering officinal and other medicines—the whole adapted to physicians and pharmaceutists. By R. Eglesfeld Griffith, M.D. Third edition; carefully revised and much enlarged by John M. Maisch, Phar. D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. Philadelphia: Henry C. Lea, 1874. With illustrations. Price: in muslin, $4.50; in leather, $5.50.

The work of preparing a new edition of this well-named *Universal* Formulary has been entrusted to Professor Maisch. Many changes were made necessary by the appearance of the new edition of the U. S. Pharmacopœia, and by the alterations in the British and German Pharmacopœias. The Formulary proper has been increased by one hundred and twelve pages; eighty-three new subjects have been introduced, among which may be mentioned:

Acidum Carbolicum,	Iodoformum,
Ammonii Valerianas,	Potassii Permanganas,
Calcii Hypophosphis,	Triticum Repens,
Ferri Pyrophosphas,	Ammonii Bromidum,
Physostigma,	Cadmii Iodidum,
Sodii Sulphis,	Ferri et Quiniæ Citras,

Ammonii Benzoas,	Pepsinum,
Bismuthi et Ammonii Citras,	Santoninum,
Chloral,	Zinci Sulphocarbolas.

Some of the old and little-used recipes have been dismissed, and where the authorities have seen fit to alter the titles of some of the articles, it was necessary to revise them and classify under their proper names.

The book as it now appears is a large octavo, of 800 pages, printed on good paper and in clear type.

The feature which at once attracts the practical eye in the Formulary itself is the admirable manner in which *useful* information is condensed in the form of head notes to the subjects. The tables also form important points of value, prominent among which may be mentioned—Equivalents in Troy and Avoirdupois Weights, Hydrometrical Equivalents, and Pharmaceutical Names. The chapter on Officinal Preparations and Directions is full of profitable suggestions, collated from the best works.

The labor of revising about 5000 formulas is not a small one, and it would not be surprising if a few errors or omissions should creep in. One that occurs to us just now, and which existed in the former editions, is that sometimes in a compound recipe the formula of one of the preparations which enters into it is not given in the book, and is not readily found in the books generally at command. As an example we instance syrup of mallows, on pages 253 and 271. And in the Index of Diseases and Remedies, cod-liver oil is omitted under the head Phthisis.

The young practitioner will find the work invaluable in suggesting eligible modes of administering many remedies, and the scope is so large that in most instances a choice to suit special cases can easily be made. The pharmacist will find that it well fills a niche in his library amongst his well-worn and tried friends, whether he wishes to make either the veteran preparations, or particularly if he receives an unexpected call for Saviard's Lotion, Vicat's Anodyne Mixture, or Stahl's Pills, or something out of the usual way.

J. P. Remington.

OBITUARY.

S. W. Butler, M.D., for many years editor of the "Medical and Surgical Reporter," died in this city January 6th, after a lingering attack of phthisis pulmonalis, in the fifty-first year of his life. The deceased was born at Maynard, East Tennessee, where his father labored as physician and missionary among the Cherokee Indians. When he graduated, in 1850, at the University of Pennsylvania, the subject of his thesis was Hydrangea arborescens, the value of which in calculous complaints has since been attested by many practitioners. For about twenty-three years, since 1854 as its proprietor, he has been connected with the "Medical and Surgical Reporter," which in 1858 he removed from Burlington, N. J., to Philadelphia, and at which he labored, until within a short period before his death, for the last seven years having been assisted by Dr. D. G. Brinton.

THE

AMERICAN JOURNAL OF PHARMACY.

MARCH, 1874.

RICINUS COMMUNIS.

Analysis of the leaves of the plant.

By E. S. Wayne.

Having observed a crystalline deposit in the fluid extract of the leaves of the *Ricinus communis*, which preparation I have made for several years past from the leaves of the plants grown in this vicinity, and which has been used by several of our physicians as a galactopoietic agent with satisfactory effect, and having a desire to know what this substance was, induced me to make the following analysis of it, and to extend my researches further.

This crystalline deposit above mentioned had the appearance of a mass of colorless prismatic crystals, imbedded, more or less, in a mass of chlorophyll, which had also separated from the fluid extract. A portion of the deposit was removed for examination, and was treated with alcohol; the crystals were left undissolved. Water was then tried as a solvent, in which they dissolved, and the solution upon concentrating deposited long prismatic crystals, which were found, upon examination, to be nitrate of potassium.

This fall, in making another quantity of the fluid extract, which required filtration to separate a quantity of chlorophyll deposited, I noticed that the greenish mass on the filter was glistening with crystals, and, upon treating some with water, obtained from it a large quantity of nitrate of potassium.

The presence of it in this mass was evidence that the salt existed as such in the leaves of the plant, which was also shown to be the case during the combustion of leaves and stems, they burning with scintillation and decrepitation almost like nitre paper.

Becoming interested in the subject, I was tempted to extend my researches, and accordingly submitted the leaves to a careful analysis for the presence of a proximate principle, and the analysis of the ash

of the plant. Analysis of the leaves failed to show the presence of any substance having the properties of an alkaloid, but proved that they did contain a proximate principle, crystallizing in square prisms and tables.

This substance was obtained by the following process: The powdered leaves were exhausted by percolation with dilute alcohol, and the percolate evaporated in a water-bath to expel the alcohol and separate chlorophyll and resin; these were separated by filtering. The filtrate was of a dark brown color. To it was added moist hydrated oxide of lead, and the mixture repeatedly shaken during the day; by this treatment the tannic acid present and a large portion of the coloring matter was removed. The solution filtered from the oxide of lead was of a pale amber color; this was then evaporated to a syrupy consistence. About one ounce of extract was left, which was exhausted with eight ounces of alcohol, and the alcoholic solution set aside for spontaneous evaporation. As the alcohol evaporated, a crystalline substance commenced to form, and from the extract above mentioned, from one pound avoirdupois of the leaves, about 60 grains of the substance was obtained of a pale yellow color, which was dissolved in alcohol, and the sclution treated with purified animal charcoal. The solution left to spontaneous evaporation deposited the substance in colorless crystals, prismatic and tabular in form.

The portion of the extract insoluble in alcohol was tested for glucose, but none found present.

The crystalline substance was then submitted to the following tests:

Concent. sulphuric acid: No change cold or by heating; by heat it dissolved to a colorless solution, which, upon being diluted with water, deposited it again as a white pulverent mass.

Nitric acid: No change.

Hydrochloric acid: No change.

Sulphuric acid and bichromate of potassium: After standing some time a green color.

The hydrochloric acid solution, upon the addition of solution of chloride mercury, formed a white precipitate.

Heated with potash, ammonia was given off.

Heated upon platina foil it fuses, and, upon further heating, it ignites and burns with a sooty flame.

Heated in a glass tube, it fuses, volatilizes and condenses in a crystalline form in the cool portion of the tube.

The fused mass, upon cooling, forms a mass having a radiated crystalline appearance. It is soluble in alcohol and water.

Taste bitter, resembling that of wild cherry bark when chewed.

From the above behavior with reagents and its crystalline form, it is evident that the substance obtained from the leaves is identical with that obtained by Prof. Tuson from castor seeds, and named by him Ricinin.*

From experiments made with the substance from the leaves, it is evident that it has no claims to be called an alkaloid, as it has no action on litmus paper, and solution of iodohydrargyrate of potassium gives no precipitate with it. Yet it contains nitrogen, as proven by the production of ammonia when heated with potash.

All of the tests made with the substance from the leaves compare with those of Ricinin from seeds.

The analysis of the plant is an interesting one, showing that a peculiar proximate principle exists in all parts of it, the same as found in the seeds. Also that the leaves contain a large percentage of nitrate of potassium, and in this respect equal to that of tobacco.

An analysis of the ash of the leaves shows that they are very rich, both in alkalies and phosphoric acid.

500 grains of the leaves were incinerated, which required some manipulation, as the ash was found to be readily fusible, and perfect combustion consequently impossible; but by charring the mass only, and then dissolving out the soluble portion with water, combustion was accomplished. 120 grains of ash = 24 per cent., was obtained, the analysis of which gave the following results:—

Lime,	33·40
Magnesia,	6·20
Potash,	27·15
Soda,	2·12
Peroxide of iron,	.70
Phosphoric acid,	6·68
Sulphuric acid,	2·90
Chlorine,	1·63
Carbonic acid,	16·20
Silica and sand,	2·41
Loss,	·61
	100 00

* American Journal of Pharmacy, 1864, p. 423.

From the above, when the size of the plant, its luxuriant growth, etc., are taken into consideration, the culture of it must be a very exhausting one upon the soil, the fertility of which must be rapidly decreased by the drain of potash and phosphoric acid. Whether it is the custom to restore to it the stalks and leaves after the crop of seed has been gathered, I do not know; but they should be, and thus by their decay restore these again to it: or that they be burnt and the ash scattered broadcast upon the land from which the plants have been taken.

Cincinnati, February, 1874.

JERVIA IN VERATRUM VIRIDE.

By Chas. L. Mitchell.

Since the discovery and isolation of two alkaloids in *Veratrum viride* by Mr. Charles Bullock in 1865, no additional researches seem to have been made. Simon obtained jervia from *Veratrum album* some ten or fifteen years ago, but notwithstanding the fact that *Veratrum viride* is so similar in almost every respect, up to this date I can find no record of any attempt having been made to prove the presence of jervia in the latter root.

While recently preparing specimens of the *Veratrum viride* alkaloids according to the process given by Mr. Bullock, my attention was drawn to the circumstance, that when the precipitate produced in the acetic solution by sodium carbonate was treated with warm diluted sulphuric acid, a considerable amount of a granular, whitish powder separated on cooling. I at first supposed it was sulphate of calcium, but a closer examination revealed the fact that it was of organic composition, and after several different trials, I succeeded in proving it to be an alkaloid identical with the jervia of Simon. It may be obtained in its pure form by the following process:

Veratrum viride finely powdered is thoroughly exhausted with stronger alcohol, the tincture distilled to a small bulk, acidulated with acetic acid and precipitated in water. The resin is then separated by filtration from the aqueous solution of the alkaloids and the filtrate concentrated by evaporation and rendered strongly alkaline with solution of carbonate of sodium. The precipitate thus obtained is

drained, dried, boiled with strong alcohol until nothing more is taken up, the alcoholic solution evaporated to dryness and digested in very dilute sulphuric acid.

The granular powder which deposits on cooling is sulphate of jervia. This is separated, well washed and drained, and then boiled for some time with a strong solution of carbonate of sodium. By this treatment the sulphate of jervia at first formed is decomposed, the jervia separating as a granular powder, which is washed until free from alkali, dissolved in acetic acid, precipitated with ammonia, well washed and dried.

Jervia thus obtained is a light, white powder, capable of crystalizing from an alcoholic solution, tasteless, inodorous and of a feebly alkaline reaction. It is insoluble in water, but very soluble in boiling alcohol, from which it is almost entirely deposited, on cooling, in white flakes. It is freely soluble in chloroform, but is only slightly soluble in benzin. With acetic and phosphoric acids it forms very soluble salts; with sulphuric, hydrochloric and nitric acids it yields salts, sparingly soluble in alcohol and water, and precipitated from the more soluble acetate and phosphate.

Potassa, soda and ammonia precipitate jervia from its solutions in white, rather gelatinous flakes, insoluble in an excess of the precipitant. With reagents it gives the following reactions: Perchloride of gold, curdy, yellow precipitate; sulphocyanide of potassium, white precipitate; bichloride of platinum, granular, yellow precipitate; iodohydrargyrate of potassium, curdy, white precipitate.

The most characteristic test for jervia is its reaction with sulphuric acid. When a minute fragment of it is moistened on a glass slide with a drop of concentrated sulphuric acid it immediately changes, first to a straw yellow and then gradually to a green color. This reaction is quite delicate.

Concentrated nitric and hydrochloric acids dissolve jervia to a colorless solution, which when boiled becomes of a straw color; when heated it melts to a clear oil; at a little above 400° Fahrenheit turns brown; and when the temperature is raised still higher, it burns with a smoky flame.

Thinking that it would be well to compare this alkaloid with the jervia from *Veratrum album*, I subjected some of the latter, which I had previously prepared, to the same tests, with precisely the same results. I do not feel as yet able to state exactly the proportion in

which jervia exists in *Veratrum viride*, but am pursuing a series of investigations on both this and *Veratrum album*, the results of which I trust shortly to be able to make public.

February 14, 1874.

LACTO-PHOSPHATE OF LIME AND COD LIVER OIL.

By C. G. Polk.

The cry of "Eureka," which has ascended so loudly over the new hobby, lacto-phosphate of lime and cod liver oil, it seems has almost led the enthusiastic members of the medical profession to hope that the great specific for all the ills to which flesh is heir had at last been found. The long high-sounding name seems to invest it with solemn import, and leads us to regard it with respect and confidence. It seemed to be the very thing for a proprietary medicine and consequently it did not take very long to secure it a copyright.

The errors of the combination, outside of the quackery into which it has been run, however, immediately concerns us, and to point them out I am prompted to indite this.

In the first place the syrup of lacto-phosphate of lime will not combine without the addition of adjuvants with cod liver oil and form a homogeneous mixture. To secure a perfect admixture, other substances must be introduced, and these usually are acacia, tragacanth, and alkalies. Against such a compound, when freshly made, there is perhaps no pharmaceutical objection. The relative amounts of cod liver oil and lacto-phosphate of lime are, however, not so uniformly required under the varying phases of disease, age, sex, and temperament, as to enable the pharmaceutical chemist to prepare a preparation uniformly adapted to every case or one as well adapted to secure the best remedial effect of the agents as when proportioned by an intelligent physician to meet each individual case. This can be done by using an emulsion of cod liver; the one suggested by Mr. Rice is a good formula, to which the syrup lacto-phosphate of lime may be added in whatever amount desired. Thus we would ever get the article fresh, free from rancidity if good oil is used, and have an article preferable to much of that now dispensed. The more I have examined the syrup of the lacto-phosphate of lime and cod liver oil, the more I have become convinced that the preparation is an unfortunate one. Cod liver oil rapidly becomes rancid and unfit for administra-

tion in the presence of the phosphate, lacto-phosphate, and hypophosphite salts of lime. It seems to me that it would be a much better plan to use the oil and lacto-phosphate alternately, than to mix them together; I always do, and often find the result very gratifying. Lacto-phosphate of lime, it seems to me, is more especially adapted to the period of convalescence from acute diseases than chronic ones. As is well known, during the progress of fevers and inflammations, the waste of the phosphate of lime is great and requires a resupply, which is nicely afforded by the lacto-phosphate. But in such cases the cod liver oil is not by any means indicated. In scrofulous diseases of children, the class in which the syrup of the lacto-phosphate of lime and cod liver oil has been very extensively used, and in which no doubt it has given good results, a better preparation would be obtained by extemporaneous combination. As a rule, fixed medical formulas combining several ingredients are objectionable. Dover Powder is an established fact, and the combination of iron, quinia, and strychnia in Easton's syrup is a splendid preparation, incapable of extemporaneous formation as required in the usual routine of pharmacy. A few more instances perhaps might be cited, but the rule still holds good. Lactic acid, it is well known, plays an important part in rheumatism; what result may then accrue from the continued use of the lacto-phosphate of lime in chronic diseases?

NOTES ON SOME NORTH AMERICAN DRUGS.

By John M. Maisch.

Cranesbill appears to be used very extensively in some sections of the country, while in others it is comparatively unknown—at least as a domestic remedy. In July, 1872, I received a plant from the region of the Blue Ridge in the State of Virginia, which proved to be *Geranium maculatum*, Lin. The letter accompanying it stated that *it* (whether the rhizome alone or the entire plant, was not mentioned) has a great celebrity there as a cure for dysentery, diarrhœa and all kinds of bowel complaints. It seems probable, however, that the herbaceous portion of the plant is not employed for the purposes mentioned, since it has merely a faintly bitter taste and is nearly devoid of astringency.

Antidote to Snake Poison.—In August last the root and radical leaves of a plant were received from Mr. T. D. Reed, of Meridian, Miss., which, the letter stated, "is said to be a specific for snake-

bite, and, in fact, the country people use no other antidote in cases of snake bite." Unfortunately, the letter gives no information whatever in regard to the part employed for the purposes stated, or to the manner in which it is used. The plants sent contain neither stem nor flowers, but from the black color of the dried plants and the character of the leaves, were at once referred to the genus *Gerardia*, and by comparison with herbarium specimens were recognized as *Gerardia* (Dasystoma, Benth.) *quercifolia*, Pursh. It belongs to the subgenus Dasystoma, which comprises perennial plants with rather large yellow flowers, with the leaves, particularly the lower ones, more or less pinnatifid or cut toothed, and opposite on the stem, the floral leaves being often alternate ; it is very difficult to preserve the green color of the plants, all the species readily turning black on drying. The genus belongs to the order of *Scrophulariaceæ*.

The species in question resembles and is closely allied to *Ger. flava*, Lin., and *integrifolia*, Gray, and is distinguished from both by the plant being smooth and glaucous, the lower leaves being usually twice pinnatifid, and by the peduncles attaining about the length of the calyx, they being shorter in the other two species named.

Most probably the subterraneous portion is the part employed, and it is not unlikely that, like several other so-called snake roots, the black color which it assumes on drying may have first attracted attention to it for the purpose named. It consists of a short and rather thin upright rhizome, sending off from eight to twelve rootlets, which are about six inches or more in length, nearly simple, when dry slightly furrowed longitudinally and readily breaking transversely. The fracture is even, somewhat granular, exhibits a thick cortical portion of a dark gray color, surrounding a thin ligneous centre, of a yellowish color and a rather irregular shape. As far as can be judged from the taste, the root probably contains a principle analogous to saponin.

Verbena bracteosa, Mich.—Branches of this plant were received last August from Mr. Buntin, of Terre Haute, Ind., who states that it is used there by physicians in the form of infusion, with marked success, in the treatment of scrofulous affections, particularly in scrofulous sore eyes, and that its alterative properties are claimed by some to be more potent than those of iodide of potassium. The plant is abundant in the neighborhood of Terre Haute, and the specimen received agrees in every respect with the specimens in the College herbarium coming from Kentucky.

The plant is procumbent and widely spreading, with its stems branching to the length of from 12 to 18 inches. It is covered with spreading whitish hairs, the leaves are narrowed at the base into a short petiole, broadly lanceolate in outline, deeply cut-toothed, or the lower pinnatifid and the teeth rather acute. The small blue or purplish flowers are collected in dense spikes terminating the branches, the numerous bracts being longer than the flowers, lance-linear in shape or the lower deeply three-cleft. Its hoariness and its dense long bracted and squarrous spikes are quite characteristic for this species, which possesses a gradually developed but lasting bitterness.

I have not been informed of the strength or dose in which the infusion is given. The plant appears to merit some attention, particularly with the view of isolating the bitter principle and determining its value as an alterative.

California Opium.— I have received from Mr. J. H. Flint, of Marysville, Cal., a handsome specimen of opium, in regard to which the following information was given:

"The opium was raised in Sutter county on the Sacramento River, about fifteen miles from this city. The expense attending the cultivation of poppy, and the collection of opium, does not warrant the outlay of sufficient capital to produce large quantities, although the soil and climate are admirably adapted to that purpose. I obtained $7\frac{3}{4}$ per cent. of morphia from a specimen *recently collected.* It yielded 52 per cent. of soluble matter to boiling water, and lost 17 per cent. of moisture after drying at 212° F. What I have used seems to answer quite as well as the imported article."

From this statement it appears that the opium was assayed in its crude undried state; if an allowance is made for the 17 per cent. of moisture, Mr. Flint's assay would give (100—17) : 100 : : 7·75 : 9·34 per cent. morphia in dry opium, or nearly the strength of opium as directed by the pharmacopœia. The high price of labor in California, it may be supposed, renders the cultivation of the poppy solely for the production of opium, unprofitable; but the seeds contain a large percentage of a bland fixed oil, and after its expression are valuable as feed for cattle; poppy culture may, therefore, notwithstanding the drawback of high wages, not prove unprofitable.

The opium received was more homogeneous in texture than Smyrna opium, of a good strong narcotic odor, and unexceptionable in its physical properties.

Oregon Balsam of Fir.—Under this name an oleo-resin has appeared in our commerce during the last year, which is rather suspicious in appearance. As far as could be ascertained, it comes from New York, and the writer has not been able to trace it beyond that city. It is a thick liquid, perfectly transparent, of a bright brownish color and a distinct terebinthinate and aromatic odor. On rubbing a little of it between the fingers, different odors become quite evident, the last one remaining being that of nutmegs. It has the appearance of being merely a solution of common rosin in oil of turpentine flavored perhaps with a little of the oil of *Eucalyptus globulus* and a somewhat larger quantity of the volatile oil of nutmegs. Is such an article known on our Pacific coast, and if so, what is its source and how is it obtained?

Adulterated Serpentaria.—Recently a rhizome with its rootlets was handed to me, with the statement that several bundles of it had been found in a bale of serpentaria obtained from a Western State. The adulteration was promptly recognized as the underground portion of *Cypripedium pubescens*, Lin. (not *C. parviflorum*)*. This differs so considerably from *Aristolochia serpentaria* and *reticulata*, that the former can never be mistaken for the latter, and the adulteration can therefore be practised successfully only when Virginia snake root is sold in bulk. The rhizome of the latter is quite thin, rarely exceeding one-tenth inch in diameter, the remnants of the over-ground stems are invariably projecting as short branches from the rhizome, which terminate by a scarcely concave scar. The rhizome of Cypripedium is much coarser, the stems die off to the rhizome, leaving large deeply cup-shaped scars, the older ones penetrating deeply into the rhizome. Cypripedium, moreover, is a monocotyledonous plant, while serpentaria is dicotyledonous and the difference in the characteristic disposition of the ligneous bundles is quite evident.

PANCREATIC EMULSIONS OF SOLID FATS.

By Richard V. Mattison.

Read at the Pharmaceutical Meeting, Feb. 17th.

Emulsions may be divided into those of solid and liquid fats. Since the publication of my former papers upon the subject of Pancreatin (see Amer. Journ. Pharm., Dec., 1873, and Feb., 1874), and indeed

*For a description of these rhizomes refer to Amer. Jour. of Pharm. 1872, p.297.

before they were written, I have spent much time in endeavoring to prepare a perfect emulsion of solid fat which would keep without becoming oxidized and at the same time form a preparation which would not offend the most delicate palate. This I think is accomplished in the present preparation, here exhibited.

The great superiority of solid fat over cod-liver oil consists principally in the fact that the former is a body rich in stearin, while cod-liver oil is chiefly olein. In the normal diet a person partakes principally of food rich in the former, hence it is that a similar body must be presented for assimilation. Cod-liver oil usually assimilates more rapidly than other fats, and if it can be continued in any case for some time, rapid improvement generally takes place. To this there is the objection that olein cannot replace stearin in the animal system, and the work is not thorough. Again, fats containing much olein are certainly partially assimilated through venous absorption, and this is a reason why patients so soon tire of the oil. The portal system becomes choked up, cathartics are necessary, and even the good effect produced is frequently lost by the course rendered necessary by these circumstances. This becomes of interest to pharmacists, first, from it being to our interest, in a pecuniary way, to devise something better than cod-liver oil, and, second, as an aid to the physician, pharmacy should select such agents as a clear, sound theory suggests, and, by scientific manipulation, so combine them and mould them that they may be of the most potent remedies in the hand of her sister Medicine.

Thus pharmacy, to prevent the loss of fat which is frequently occasioned by the choking up of the portal system through the administration of too much olein, selects a solid fat which is only absorbed by the lacteals, and thus the amount of fat necessary for perfect nutrition can be administered in the natural manner. The fat formed by the assimilation of this emulsion is of a firmness not readily attainable by the administration of cod-liver oil or other similar elements of nutrition. The administration of cod-liver oil in connection with the emulsion of solid fat, however, probably answers more efficiently than either alone.

The emulsion of solid fat is best prepared in the following manner:

Take of the fresh pancreas of the pig, one hundred pounds; lard, purified, eighty pounds; water, six gallons.

Dissect off all the fat and other extraneous matter from the pan-

creas, and comminute finely. A sausage cutter, driven by steam, is one of the most complete pieces of machinery for this purpose. After coming from the cutter it is allowed to drop with the fat into a cylindrical hopper driven by the same power. Into this hopper the six gallons of water are allowed to trickle slowly until a perfect emulsion is formed. From the hopper the emulsion is transferred to the press, in which a strong twilled flannel bag is placed, which should be of two thicknesses of material, and the emulsion is thus rapidly separated from the membraneous areolar tissue of the pancreas.

To this emulsion ether is added, and the mixture allowed to remain at rest, with occasional agitation, for a period of about forty-eight hours. For the above quantity from two hundred and fifty to two hundred and seventy-five pounds of ether are required. At the end of this time the mixture separates into two layers or strata, viz., an etherial solution of pancreatized fat at the top, and an aqueous solution of the impurities of the lard, &c., at the bottom. This mixture is allowed to stand in a large cedar vat, which has glass plates inserted in the side to allow the operator to observe the point of separation between the etherial and watery stratum. Into the side of this vat, which should be tall and narrow at the top, like a precipitation jar, a number of wooden spigots are inserted, through which the etherial solution of pancreatized fat is drawn off into a filtering apparatus, so arranged as to prevent the escape of the ether. (If allowed to stand long enough, a considerable portion will need no filtration.) This filtered etherial solution is transferred to a suitable still, and the ether distilled off with gentle heat. This is the most troublesome part of the process, as it requires a considerable length of time to free the fat from the last traces of ether, unless the temperature is raised, which results in the decomposition of the emulsified fat.

The pancreatin seems to split up in some manner by heat, leaving the fat in the same condition as it was before, or at least its emulsifying power is very much impaired. At the same time there is a peculiar sulphurous odor developed, reminding one of the presence of onions or garlic, or a trace of allyl sulphide or sulphhydrate.

After the fat has been freed from ether with due regard to the temperature, it is removed from the still, and to every fifty parts of this fat seventy-five parts of distilled water and twenty-five parts of alco-

hol are added, both being added very carefully; when all the water and alcohol has been taken up, enough oil of cloves is added to impart a pleasant flavor.

From my experiments made before the publication of my first article in the "Journal," Dec., 1873, I was led to suppose that, contrary to the views of eminent physiologists, pancreatin has no power of decomposing fat. These views were expressed at that time, and the following facts elucidated by the practical management of the above process will serve as further illustrative of the facts there mentioned.

The first is that the pancreatized fat obtained by evaporation of the etherial strata before mentioned, when acted upon by plumbic oxide, yields lead, plaster and glycerin. This certainly shows that the fatty acids are still held in combination with the oxide of glyceryl, although the fat be pancreatized and emulsified.

Second, the aqueous solution left after the decantation of the etherial strata contains no glycerin. This proves the absence of even partial saponification upon the mixing of the fat in the first instance with the pancreas.

A sample of the emulsion of solid fat, prepared as above, was presented our late esteemed Prof. Procter, who regarded it with much favor, and spoke at length upon it in connection with the sample of pancreatic emulsion of cod-liver oil which is here exhibited, both of which samples were exhibited to the class upon the occasion above referred to, which was the evening of his death.

The emulsion prepared by this process should have an acid reaction to litmus paper, and should not separate upon standing. Much care is necessary in the manipulation to prevent this.

When added to a small quantity of water, and stirred until complete mixture is effected, the whole has the appearance of milk, and any quantity of water may be added without disturbing in the least the appearance of the emulsion. This I now show you, and you will notice how perfectly the fat is emulsified.

A superior method of administering the emulsion is to add it, little by little, to milk; to those persons having an antipathy to milk it is easily given in a mixture of arrowroot and water. This proves an excellent method, as the pancreatic emulsion, as well as the pancreatin itself, has a decided action upon amylaceous matter, changing it to

glucose; hence it can be easily seen how important the administration of this in connection with arrowroot is in cases of marasmus and other infantile diseases arising from defective nutrition.

In this I intended to present a formula for pancreatic emulsion of cod-liver oil which *would not separate* upon standing, but remain perfectly emulsified. Want of time has prevented this, my experiments in this not having thus far proved perfectly satisfactory.

Throughout all my experiments I have been greatly assisted by both my partners, to whom I acknowledge my indebtedness, and to much information and pleasure derived through a careful perusal of the most prominent medical periodicals for several years back. I would refer the reader for much useful information to the back numbers of the *Lancet*, *Practitioner*, *Medical Press and Circular*, *British Medical Journal*, *Chemical News*, *Chemist and Druggist*, and many American reprints.

Philadelphia, 2 *mo.*, 1874.

AQUA CINNAMOMI, U. S. P.

By Edmund Backhaus.

The Pharmacopœia directs for preparing this water to take of

Oil of Cinnamon, . .	half a fluid drachm,
Carbonate of Magnesium, .	sixty grains,
Distilled Water, . . .	two pints.

Rub the oil first with the carbonate of magnesium, and then with the water, gradually added, and filter through paper.

Made according to this process, no doubt many pharmacists, as myself, have derived unsatisfactory results.

At first the filtered water is of a beautiful light canary yellow color, but on standing for a short period it invariably deposits the cinnamic acid contained therein, which makes it a very unsightly preparation.

In order to procure a more satisfactory result I was induced to make several experiments. My first was to rub up the oil with calcined magnesia, thinking, perhaps, that the carbonic acid of the magnesia had some effect on the oil; this, however, was found not to be the case.

My next was to make the water in the usual way, then to pass car-

bonic acid gas through the filtrate for a few minutes; the result being a beautifully clear solution, the canary yellow color having disappeared, but in odor and taste the water remained unchanged.

The product of this last experiment has been standing on the shelf for a long time, unaltered.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

*Ferrated Cod Liver Oil** was prepared by Julius Muller by dissolving one part of sublimed ferric chloride in one hundred parts of cod liver oil, which thereby acquired a deep violet, almost black, color, and rapidly became rancid, while the iron compound was reduced to ferrous salt.

A handsome ferrated oil, however, is obtained by triturating one part of benzoate of iron with light cod liver oil until one hundred parts of the latter have been added, agitating the mixture occasionally during several days, and filtering. The clear filtrate is of a yellowish brown color, and contains nearly one per cent. of ferric benzoate. This salt must be prepared for the above purpose from benzoic acid obtained from benzoin; the commercial salt usually has a urinous odor, and imparts to cod liver oil a disagreeable odor and taste.—*Archiv d. Phar.*, Dec. 1873, p. 534.

Impurities in Medical Chemicals.—Dr. R. Goddefroy in Zeitschr. d. Oesterr. Apoth. Ver. 1874, p. 15, gives a list of chemicals which are usually found in Austrian commerce in an impure condition. Oxide of mercury contains carbonate of calcium; hydrate of aluminum contains basic sulphate of aluminum, and tartar emetic, golden sulphur, precipitated sulphur, phosphate of sodium, sulphate of copper, ammonia water, iodide of potassium, corrosive sublimate, caustic potassa, etc., are often not sufficiently pure.

Remedy for Frostbites.—Berthold recommended about twenty years ago† tannin for this purpose. Rhien recommends the addition of iodine as follows: 30 grams of tannin are dissolved in 200 cc. of water, and 3 grains of iodine in 50 grams of alcohol; the solutions are mixed and the mixture diluted to 1½ litre. The mixture is placed

* See also American Journal of Pharmacy, 1861, p. 317.

† See American Journal of Pharmacy, 1856, p. 180.

upon a slow fire, and the affected part immersed until the liquid becomes too hot; the part is then allowed to dry near the fire. The application is made once daily, a complete cure being effected after four or five days.—*Wittstein's Viertelj. Schrift.*, 1873, 602.

PILLS OF SULPHATE OF QUINIA.

By William Delker.

Pharmacists are often requested by physicians to make quinia pills as small as they possibly can, and, after trying a number of experiments, I have found that glycerin is the best excipient. It makes a very good mass, and does not increase the bulk of the pills. I have been using it for a number of years, and it has always given general satisfaction. The following is the proportion of glycerin to be used:

℞.	Quiniæ Sulph., . . .	grs. xxiv,
	Glycerinæ, ...	gtt. viii.

M. ft. pil. no. xii.

I drop the glycerin from a one-ounce prescription vial.

Note by the Editor.—Glycerin has been suggested as an excipient for quinia pills by Dr. T. E. Jenkins, in "Amer. Journal of Pharmacy," 1869, p. 119; and mixed with honey, by W. P. Creecy, in the same volume, page 7.

ON A NEW ALLOTROPIC MODIFICATION OF PHOSPHORUS.

By Prof. Edwin J. Houston.

In connection with Prof. Elihu Thompson, of the Artisans' Night School, the author has undertaken an extensive series of experiments, resulting, it is believed, in the discovery of a new allotropic modification of phosphorus.

It has long been known that when phosphorus is boiled in strong potassium hydrate, and then allowed to cool slowly, it retains its liquid state for some little time, but that if shaken, or touched by a sharp point, instantly solidifies.

We believe that in the cases heretofore observed, the property of retaining the liquid state may be owing to the admixture with the ordinary phosphorus of an allotropic modification, having the proper-

ty of retaining its liquid state indefinitely. Hence, if this modification be obtained sufficiently pure, it would probably exhibit properties strikingly distinct from the common variety. We have therefore instituted a series of experiments, with the following results.

Good phosphorus was taken and boiled repeatedly in strong solution of potassium hydrate, water being occasionally added to replace that lost by evaporation. Care was taken by cautious stirring to prevent the phosphorus from being carried to the surface, by bubbles of the disengaged gas. When the operation had continued for five or ten minutes, the liquid phosphorus was carefully washed by replacing the alkaline solution by a stream of running water. In this way, all the hypo-phosphites were removed as well as the liquid and gaseous hydrides of phosphorus. The purified liquid phosphorus is now in a condition which we believe to be a new and hitherto unnoticed allotropic modification. It has the following properties:

1st. That of retaining for an apparently indefinite time its liquid condition, even when exposed to temperatures very considerably below the melting point of ordinary phosphorus. A carefully prepared specimen has been kept by the authors for upwards of *four months*, and is still, at the date of this publication, in the liquid condition. The specimen in question is preserved beneath a water surface in a small test tube. Its weight is about one-eighth of an ounce. The test tube is tied by a string and suspended in a position where it is free from jars or sudden shaking. The room in which it is preserved has been for weeks without a fire, the temperature having often reached a point probably near 40° F., and yet the liquefaction has not been disturbed. There is every reason to believe that this specimen in common with others experimented upon, will instantly solidify on being touched.

A small specimen placed in a test tube and covered by a water surface, was exposed to artificial cold, produced by the rapid evaporation of ether. It solidified at about 38° F. Under more favorable conditions, and with larger masses, it is probable that the temperature could be reduced still lower.

2d. Another respect in which this liquid differs from the ordinary variety is its non-oxidation on exposure to the air.

3d. It does not shine in the dark. This follows from the preceding property. Several specimens showed no appreciable light when ex-

posed to direct contact with air in a dark room. We regard this very unusual property as suggestive of an allotropic state.

Apparently two modifications of solid phosphorus result from the solidification of the liquid variety. One is tough and waxy, like ordinary phosphorus; the other brittle and crystalline in texture. The best liquid specimens in solidifying, always gave the second variety—indifferent ones, the first. We therefore regard that producing the second, as the true liquid modification.

Rough experiments were made in order to ascertain whether the liquid modification underwent any change of volume by solidification. For this purpose a specimen was placed in a test tube filled with water, and a small capillary tube also filled, passed down into the vessel, and attached to it by a well-fitted cork. Any appreciable change in the volume of the phosphorus would cause a rise of the water in the capillary tube. We expected to find a slight change, but none was observable. This result was probably owing to the expansion occasioned by the heat emitted on solidification, exactly balancing the contraction caused by the passage from the liquid to the solid state. No sudden movement of the capillary column was noticed on the instant of solidification.

In order to see whether the liquid state was due to hydrogen in combination with the phosphorus, we placed small pieces of the solid variety in a tube, whose ends were afterwards drawn out into capillaries, and then, passing hydrogen from a small generator through the tube, melting the phosphorus. A liquid resulted, possessing different properties from that formed by boiling in potassium hydrate. It was quite mobile, of an amber color, and on solidifying, produced the waxy material.

A fact, not perhaps well known, was noticed during the conduct of the experiment. A colorless gas was evolved from the free end of the tube which was spontaneously inflammable in air. The heat of this flame was, however, so slight as to render it incapable of igniting the hydrogen issuing with it.

To test the effect of the boiling point upon the production of the allotropic modification, specimens were prepared by long boiling in saturated solution of chloride of zinc. We were unsuccessful in obtaining the liquid modification. A high boiling point cannot, therefore, be assigned as the entire cause of the change.

The substance in question may be merely a very pure phosphorus,

yet its liquid condition and non-oxidation can scarcely be ascribed to this circumstance. We therefore consider that the existence of a hitherto unknown liquid modification of the element phosphorus is rendered highly probable. The distinct properties it possesses, apart from the ordinary substance, are much more clearly marked than those upon which the elastic modification of sulphur is based.

It may be mentioned incidentally that the brittle crystalline mass, produced on the passage of the liquid modification to the solid state, differs from the waxy variety of ordinary phosphorus. It oxidizes so rapidly on exposure to air as to produce a rise of temperature sufficient for its liquefaction. The liquid thus produced possesses only the properties of ordinary melted phosphorus, and catches fire very readily.

Central High School.—Journ. Franklin Inst., Feb. 1874.

THE MEDICINAL EXHIBITION OF PHOSPHORUS.

By A. C. Abraham.

In the "Pharmaceutical Journal" of December 6th appeared an article by Mr. Gerrard, in which he recommended a method for combining phosphorus with resin for the above purpose.

The process involves the application of a strong heat under circumstances extremely inconvenient and dangerous to the operator, and calculated to deteriorate the product by the oxidation of the phosphorus, and by its conversion into the amorphous form.

To obviate these disadvantages I would propose to use some resin fusible below the boiling point of water, and also sufficiently heavy to sink in that liquid. Balsam of tolu will be found to answer both these requirements, and by its use the combination can be effected entirely under water. Experiment has shown that four grains of phosphorus are perfectly dissolved by 96 grains of washed tolu, if melted together under water and well stirred.

The preparation so made, when examined microscopically, does not show any particles of undissolved phosphorus, and when seen in the dark, and rubbed between the fingers, it gives off a perfectly *equally distributed* light.

This preparation may, therefore, be formed into pills, with every confidence in the equal distribution and activity of the phosphorus.

Liverpool. —*London Pharm. Jour., Jan.* 10, 1874.

COMBINATION OF LIME AND GLYCERIN, AND ITS PHARMACEUTICAL APPLICATIONS.*

By P. Carles.

The recent publication of a note upon this subject† has induced the author to put on record some experiments, the results of which were communicated orally to the Paris Société d'Emulation pour les Sciences Pharmaceutiques in 1871, but have not hitherto been published.

When distilled water is shaken with lime under normal circumstances it only dissolves 1·251 grams per litre; but this proportion is, however, singularly increased by the intervention of neutral bodies, such as the sugars. That glycerin also acts in the same manner was noticed by the author, and gave rise to the following experiments:

Into a series of flasks of similar capacity were placed constant quantities of 100 grams of distilled water and 20 grams of pure lime, together with varying proportions of glycerin, 0, 50, 100, 200, 400, etc. The flasks were labelled, 1, 2, 3, 4, 5. After agitation of the mixture for some time at a temperature of 18° C. the quantity of lime passed into solution was estimated alkalimetrically, and found to be—

No. 1,	1·251
" 2,	1·865
" 3,	2·583
" 4,	4·040
" 5,	6·569

Now, if each of these numbers be reduced by 1·251, the co-efficient of the solubility of lime in water, it will be found that an addition of 50 parts of glycerin to 1000 of water augments by nearly one-half the solubility of the lime, and that this solubility is doubled by the addition of 100 parts of glycerin per litre. If the proportion of glycerin be raised beyond 200 parts the quantity of lime dissolved is still sensibly increased, but starting from that figure it is in proportion irregularly inverse to the quantity of glycerin added. It is the author's opinion that the combination of glycerin with lime, which

* Bulletin de la Société de Pharmacie de Bordeaux, vol. xiii, p. 294.

† Pharm. Journ. [3], vol. iv, p. 321. See, also, Amer. Journ. Pharmacy, 1873, p. 397 and 557.

is a true combination very soluble in water, is on the contrary slightly soluble in glycerin itself. Commencing at experiment 5, it communicated to the liquor a latescence more and more opaque, and whilst the undissolved lime was precipitated rapidly or remained upon the filter, the glycero-calcic compound remained for a long time in suspension, or even passed through the paper. In short, the glycerinate of lime is formed in larger proportion as the quantity of glycerin is increased, but being less soluble in the latter than in water remains in suspension.

These solutions appear to the author to be susceptible of the following applications :

(1) In a chemical point of view, since they remain unaltered during a long time, they might advantageously replace as alkaline liquors the changeable solutions of saccharated lime.

(2) Pharmaceutically it would allow of the simplification of the preparation of the lime liniment, and yield a superior product. The Codex orders one part of oil of almonds, and nine parts of lime water, to be agitated together, and the separation of the soap which floats on the top. If, in the place of ordinary lime water, equal parts of almond oil and of lime water containing 10 per cent. of glycerin are simply agitated together, a consistent calcareous soap is produced, which, even after several weeks, loses none of its consistence or homogeneity.

(3) Considered therapeutically, the addition of the glycerin, which besides is produced in small quantity in the ordinary process, appears to constitute an excellent adjuvant.—*Pharm. Journ.* (*Lond.*), *Jan.* 10, 1874.

ON CYMENE AS A CONSTITUENT OF, AND DERIVATIVE FROM, OIL OF TURPENTINE.

By C. R. A. Wright, D.Sc.

On Feb. 6, 1873, the writer read before the London Chemical Society a paper (*Chemical News*, vol. xxvii., p. 82 ; *Journ. Chem. Soc.*, [2], xi, 549) wherein it was shown that there are reasons for supposing that the small quantities of terephthalic acid obtained by the oxidation of certain terpenes are really derived, not from the terpene itself, but from cymene simultaneously present ; and it was moreover stated that cymene had been actually isolated from two such terpenes (viz. myristicene from nutmeg oil and terebenthenes from oil of turpentine) by a process suggested to the writer by Dr. Hugo Müller, viz.,

"treating the mixture with sulphuric acid so as to polymerise the terpene present, and then diluting with water, and distilling in a current of steam."

Shortly after (April 3, 1873), the writer read a second paper describing the properties of the cymene thus obtained, and contrasting them with those of cymene from other sources (*Chemical News*, vol. xxvii., p. 180; *Journ. Chem. Soc.* [2], xi., 686).

On Feb. 21, 1873, M. Ribau communicated to the Paris Chemical Society the results of his experiments on the action of sulphuric acid on terebenthene (*Bul. Soc. Chem. Paris*, xix., 242), and on July 4, 1873, he also read another paper on the same subject (*Ibid.*, xx., 97 and 100), the result arrived at being that cymene is formed from the terpene by the reaction $C_{10}H_{16}+H_2SO_4=2H_2O+SO_2+C_{10}H_{14}$. In a postscript to the second of the above mentioned papers, written before the appearance of M. Ribau's second communication, the writer suggested that the cymene obtained by M. Ribau was not formed thus, but was that pre-contained as such, the main reason given being that by cautiously acting on oil of turpentine with sulphuric acid, "the writer had succeeded in isolating cymene from oil of turpentine, without the evolution of more than inconsiderable quantities of sulphurous acid." The method employed was as follows:—Oil of turpentine freed from oxidized substances by distillation over sodium was very gradually mixed with about its own weight of sulphuric acid, the mixture being carefully cooled; after a few minutes the whole was poured into a large bulk of water, the oily layer decanted and distilled with water, and the oily layer of distillate treated repeatedly in the same way. Only once or twice was a very faint odor of sulphurous acid observed; and, as about 3 per cent. of nearly pure cymene was ultimately obtained (irrespective of losses and waste in distillation), it was inferred that this was pre-contained as such.

It being in no way improbable that some specimens of oil of turpentine might contain more cymene than others, the pre-existence of M. Ribau's cymene thus appeared exceedingly probable, even though the amount obtained by this chemist was considerably above 3 per cent.

Between August 20 and September 1, 1873, Herr Orlewski read before the Meeting of Russian Naturalists, at Kasan, a paper, in which he states (as reported by Richter, *Ber. Deut. Chem. Ges*, vi., 1257), that considerable quantities of cymene are produced by the action of sulphuric acid on turpentine oil in the ordinary process for

preparing terebene; and that terebene itself is altered by this reagent, cymene being formed, sulphurous acid being simultaneously generated. At the same time Herr Orlewski stated, that by long continued fractional distillation of an old yellowish sample of turpentine oil, he succeeded in isolating a small per centage of cymene (10 grammes from 1½ litres), and ascribed the presence of this substance to the action of atmospheric oxygen on the original oil, whereby hydrogen is removed from the terpene.

As regards this explanation, the writer has shown (*loc. cit.*) that by the action of oxidizing agents, certain terpenes undergo the reaction, $2C_{10}H_{16}+O_2=2C_{10}H_{16}O$, the resulting bodies presenting great similarity to certain isomerides of camphor which readily break up by treatment with dehydrating agents into cymene and water, $C_{10}H_{16}O=H_2O+C_{10}H_{16}$. M. Ribau has very recently published in the *Bulletin* of the Paris Chemical Society (January 5, 1874, pp. 3, 4) two notes, the one a reclamation for priority over Herr Orlewski, the other a discussion of the reasons assigned by the writer for supposing that the cymene obtained by M. Ribau was pre-contained as such.

As regards the first question, a comparison of the above dates will show that, whilst M. Ribau undoubtedly preceded Herr Orlewski in this matter by several months, the results of the writer were made public in London more than a fortnight before those of M. Ribau were first brought before the notice of Parisian chemists; it is therefore evident that, whilst the experiments of M. Ribau and the writer must have been carried on almost simultaneously, the actual claim to priority rests with England rather than with France or Russia.

As regards the second point, the writer has great pleasure in confirming the exactitude of M. Ribau's results; whilst he has no doubt from his own results (and those of Herr Orlewski) that cymene is actually pre contained in, at any rate, some specimens of oil of turpentine; and in other terpenes he has yet found that when the action of the sulphuric acid is prolonged for some hours at the ordinary temperature (and especially if the mixtures be made quickly so as to heat rapidly), sulphurous acid is copiously given off, and *a much larger quantity of cymene is obtainable than can be if all possible care and precautions are taken to avoid the formation of sulphurous acid;* this additional quantity must necessarily be found, as M. Ribau first suggested, by the reaction $C_{10}H_{16}+H_2SO_4=2H_2O+SO_2+C_{10}H_{14}$.

Chemical Laboratory, St. Mary's Hospital, Jan. 11, 1874.

Chemical News, London, January 23, 1874.

STAS-OTTO'S SCHEME FOR THE DETECTION OF ALKALOIDS, Etc.

*Translated from the German by H. Carrington Bolton, ph. d.

<table>
<tr><td colspan="3">Taken up by ether in acid solutions.†</td><td colspan="4">Taken up by ether in alkaline solutions.‡</td></tr>
<tr><td colspan="3">With tannic acid.</td><td colspan="4">Solid (odorless).</td></tr>
<tr><td colspan="2">Precipitated.</td><td>No action.</td><td colspan="4">With concentrated sulphuric acid.</td></tr>
<tr><td>Colchicia.</td><td>Digitalin.</td><td>Picrotoxin.</td><td colspan="2">In the cold.</td><td colspan="2">On heating.</td></tr>
<tr><td rowspan="3">The yellow solution is colored violet by concentrated HNO_3.

On diluting the nitric acid solution and making it alkaline with NaHO, an orange-red coloration is obtained.</td><td rowspan="3">Mixed with a solution of gallis concentrated H_2SO_4 a bright red stratum is formed and finally a red liquid.

On dissolving in concentrated H_2SO_4 and mixing with a drop of bromine water, a violet red coloration is produced.</td><td rowspan="3">The dilute alkaline (NaHO) solution is colorless and reduces Fehling's copper solution.</td><td>Rose-red.</td><td>Brown-red.</td><td>Yellow, then orange, and cherry-red.</td><td>Yellow, then violet-blue, and dark red.</td></tr>
<tr><td>Brucia.</td><td>Delphinia</td><td>Veratria,</td><td>Narcotina,</td></tr>
<tr><td>Soluble in concentrated HNO_3, with a bright red color, which becomes yellow on heating. On adding stannic chloride to this solution, a violet color is formed.</td><td>forms with concentrated H_2SO_4 and bromine water a reddish-violet color. The same coloration appears on evaporating with phosphoric acid.

Aconitia

dissolves in H_2SO_4 with a red-brown color.</td><td>forms with concentrated HCl a colorless solution, which becomes a fine dark red on heating.</td><td>on dissolving in H_2SO_4 with a little HNO_3, forms a red color. Concentrated H_2SO_4 with a trace of sodic molybdate forms a green color. Dissolves in HCl, forming a pale green solution which turns yellowish-red on adding NH^4HO.</td></tr>
</table>

<table>
<tr><td colspan="5">Taken up by ether in alkaline solutions.‡</td><td>Insoluble in ether</td></tr>
<tr><td colspan="3">Solid (odorless).</td><td colspan="2">Liquid (strongly odorous).</td><td>Morphia.</td></tr>
<tr><td colspan="2">With concentrated H_2SO_4 and $K_2Cr_2O_7$.</td><td rowspan="3">With concentrated phosphoric acid and application of heat.</td><td colspan="2" rowspan="2">With chlorine water.</td><td rowspan="6">The ammoniacal solution gives a grass-green solution on heating with cuprammonium (Nadler). Concentrated HNO_3 colors it blood-red, neutral Fe_2Cl_6 colors it dark blue. On dissolving in concentrated H_2SO_4, heating, allowing to cool, and then adding a little HNO_3, an intense red color is produced. Reduces an acid solution of iodic acid, the iodine dissolving out in CS^2 with a violet color.</td></tr>
<tr><td>In the cold.</td><td>On heating.</td></tr>
<tr><td>Violet-blue.</td><td>Characteristic odor.</td><td>Precipitated.</td><td>No action.</td></tr>
<tr><td>Strychnia</td><td>Atropia.</td><td>Aconitia</td><td>Conia.</td><td>Nicotina.</td></tr>
<tr><td>forms a yellow solution with HNO_3. The violet coloration also obtains when either potassic ferricyanide, plumbic and manganic dioxides, or potassic iodate is used in place of $K_2Cr_2O_7$.

Note.
Curarina
gives similar reactions to strychnia, but forms a red color with H_2SO_4 alone, and is moreover insoluble in ether in the presence of acids and alkalies.</td><td>The odor is better formed by placing the alkaloid on a few crystals of chromic acid and gently heating until the green oxide of chromium begins to form.</td><td>produces a violet color. Dissolves in concentrated H_2SO_4 with a hair-brown color.

Delphinia and Digitalin

behave in the same manner with H_3PO_4.</td><td>Aqueous solutions become colored on heating.

Dry HCl gas colors it red and then deep blue.</td><td>Aqueous solutions do not become colored on heating.

On gently heating with HCl, becomes violet, and on adding HNO_3 the color changes to orange.</td></tr>
</table>

* Pharmaceutische Post, Vol. VI., No. 11, June, 1873. † Also a small quantity of atropia.
‡ Also partially colchicia and digitalin.—*American Chemist, November*, 1873.

THE CULTURE OF GUNJAH IN BENGAL.

Ganja or Gunjah (*Cannabis indica*), forms an important excisable article in Bengal, and yields a yearly revenue of Rs. 1.106,818 (£110,681). Why the cultivation of ganja is confined to a single tract of land lying on the north of Rajshahye, south of Dinagepore, and southwest of Bogra, is a vexed question. Judging of matters from a practical point of view, similar soils would produce ganja anywhere. Every year the cultivation is extending to the north and east, which is an indication that it is not confined to a limited space. The mode of cultivation, the labor and outlay necessary, the restrictions placed on storage and sale of ganja, the rapidity with which it deteriorates, operate as a check to a successful extension of the cultivation in every district. Ganja is also grown in the tributary mehals of Orissa, but it is of an inferior description, and finds no favor with the smokers in Bengal. All soils are not equally adapted to the cultivation of ganja. Light sandy soils are best adapted, and the plants reach the height of six to seven feet. Poor warm soils sometimes yield good hemp; stiff clays are generally avoided. Extreme moisture is prejudicial to the growth of the plants; the cultivation begins in August, the seeds are sown broadcast in the nursery, and in a week they germinate. In a fortnight, when the plants attain a little strength, and are able to bear transplantation, the nursery is broken, and the seedlings are sent to the field and sown in rows six inches apart from each other. The fields are not large in size, each being on an average fifteen cottahs, or a beegah. The soil is renovated every year by the addition of fresh earth, and before the seedlings are transplanted, the ground is harrowed and manured with oil-cakes and cow-dung, and the soil thus prepared is fit to receive the plants. When the plants spread their leaves, men known as "ganja doctors" are employed to pick out the female plants, which yield no flowers, and are injurious to the crop. Ganja doctors alone can distinguish the female organs in the plants; the process of picking is repeated two or three times, and when he cultivator is sure that all female(?) plants have been uprooted and thrown away, he again manures the ground with cow-dung and liquid oil-cakes, and clears the stems of the plants. In a field of one thousand plants some four hundred are thrown away. In December, when the plants reach the height of four or five feet, ridges are opened, and the ground is irrigated and

manured with oil-cakes. The more oil-cakes are used the more the plants thrive. At the end of January the plants mature, and the harvest season commences. The plants are cut by the cultivators and divided into four or five parts, and exposed to the rays of the sun for three or four days; the leaves being withered, are spread on mats and trampled upon, and they assume the flat shape in which ganja is sold in the market. Round ganja is prepared by a similar process: the stalks being taken off, each branch is rolled up and dried. Chur ganja consists of flowers and leaves. There is no difference in the narcotic powers of these three descriptions of ganja. The natives of the Turkish empire and the North of Africa are far more addicted to the use of haschisch, or hemp, than to that of opium. They have a similar effect, yet the former is decidedly preferred. They use either the dried leaves in smoking, or they drink the expressed juice, or use it in the form of cakes soaked with that essence. Much uncertainty prevails among botanists regarding the plant or plants which produce these narcotics—whether they are different species or mere varieties of the common hemp.* Probably *C. sativa* and *C. indica* are identical, yielding the ganja and bhang of the East. Both the above drugs are sold separate in the Indian bazaars, and in external appearance are considerably different. Ganja has a strong aromatic and heavy odor, abounds in resin, and is sold in the form of flowering stalks for smoking with tobacco. It is made up in bundles about two feet long and three inches in diameter, containing about twenty-four plants. Bhang is in the form of dried leaves without stalk, of a dull green color, not much odor, and only slightly resinous. Bhang is not smoked, but pounded up with water into a pulp, so as to make a drink highly conducive to health, and people accustomed to it seldom get sick. Bhang grows in abundance in Tirhoot and Bhagulpoor in the wild state. In Scinde a stimulating infusion made from the plant is much drunk among the upper classes, who imagine it is an improver of the appetite. Ganja is frequently mixed with tobacco to make it more intoxicating. This is especially done by the Hottentots, who chop the hemp leaves very fine, and smoke them together in this manner. Sometimes the leaves powdered are mixed with aromatics, and thus taken as a beverage, producing much the same effects as opium, only more agreeable. The cost of cultivating a beegah of land varies from

* "Canadian Pharmaceutical Journal."

30 to 35 rupees. The quantity of manure required for a beegah of land and cost incurred for it, as well as other expenses incidental to the cultivation, are given below.

	Quantity required for manuring one beegah of land.—Maunds.	Cost incurred. Rs.	a.	p.
Cow-dung, . . .	10	1	14	0
Oil-cake, . . .	10	12	2	0
Rent, ...	...	2	0	0
Irrigation, . . .	...	6	0	0
Labor, cutting and thrashing, .	...	12	0	0
Fresh earth added, . .	...	2	0	0
Total, . . .		36	0	0

In fact, without irrigation and manure ganja does not thrive. There are no irrigation wells in this district, and the water required is bailed from the nearest tank, bil, khal, and river. The cultivators fully understand the advantages of allowing land to remain fallow for a year or two, in order that it may produce a good crop of ganja. Ganja is sometimes alternated with barley, mustard, or other pulses. Ganja, like mulberry, is grown on high lands; extreme moisture injures the plants. Each cultivator cultivates one cottah to four beegahs of land; the produce varies from 5 maunds 20 seers to 9 maunds 20 seers per beegah. About 1,100 to 1,200 beegahs of land are annually sown with ganja, and the produce amounts from 9,000 to 10,000 maunds; 1,300 to 1,400 men are engaged in the cultivation. They cultivate on their own account; some of them occasionally take advances from money-lenders, or their landlord, and mortgage the produce under a system of hypothecation, and sometimes they sell off the crops to wholesale dealers and content themselves with a small profit. Some of them let out the lands in bhagjote to under-ryots, and divide the crop in equal shares with them. When fields are sold to wholesale dealers, they cut, dry, and manipulate the plants at their expense for exportation to their own districts. The cultivation of ganja under a system of advances, as is done in indigo, has not succeeded. Twenty years ago, Mr. Brown commenced the cultivation of ganja by making advances to the cultivators; about 8,000 maunds of the drug were cultivated in the first year, which were made up like opium cakes and shipped to the China market. The advances were not renewed—probably Mr. Brown found that the trade was not sufficiently remu-

nerative. Ganja is one of the first staple articles of produce in this district, and the value of export may be estimated at 200,000 rupees. Thirty years ago the value of this export was represented by 40,000 rupees; the drug was sold by the cultivators at eight annas to one rupee four annas a maund, and now the price has enormously increased. The general rise in the price of all articles of food also influenced the ganja trade. From 4,800 to 5,091 licenses are annually issued for the sale of this drug in Bengal. The cultivators of ganja are mostly Mahommedans, because the bulk of the population in the northern part of this district is of that persuasion. Some of them are well-to-do in the world, and have accumulated small fortunes by industry and economy, but they do not know how to utilize their money or enjoy it. The hooka is in general use, and both sexes smoke. Children at an early age acquire the awkward habit of smoking the hooka; at an early hour of morning the men leave the house with a hooka in hand to work in the field. The use of stimulants is unknown to the ryots on the north of this district. Of late they have imbibed the habit of chewing opium; ganja, which is extensively cultivated by them, finds no favor. The ganja trade is carried on by three distinct classes of men: the cultivators who produce the drug, the wholesale dealer who exports it from the producing district, and stores it in a public gola to sell to the retail vendors, and the retail vendors who supply the consumers. Each in his turn makes whatever profit he can. Neither the first nor the second has any fee to pay to Government. The cultivators sell the drug to the wholesale goladar and retail vendor, and to nobody else, and any violation of this condition subjects him to a penalty and a forfeiture of his license. He makes his bargain without the intervention of excise officers. He submits his samples to the purchaser through a broker, and if it is approved, the bargain is struck, and the drug is conveyed to the cutchery of the supervisor of the cultivation of ganja to have it passed. The wholesale goladar sells the drug to the retail vendor in the presence of excise officers. The retail vendor pays a monthly fee of four rupees for each license and the duty fixed by the Board of Revenue. This fee in the town of Calcutta and its suburbs is fixed at sixteen rupees in Calcutta, and at eight rupees and four rupees in the suburbs respectively. The wholesale trade is confined to two hundred people, and they are all men of substance. The retail vendors are men of small capital, averse to agricultural labor. They are generally illiterate, and cannot even write

the accounts of their shops. They manage to make a capital living. The whole of the excise duty on ganja is contributed by the laboring classes. There has not been any improvement in the cultivation of ganja; the same manures which had been used in years gone by are used to this day. The same process for conserving the manure is followed. There has evidently been deterioration in quality of the produce; the plants do not weigh so heavy as they used to do twenty years ago.—*Journ. of Applied Science, Feb.* 1, 1874.

GIGARTINA ACICULARIS AS AN ADULTERANT OF CARRAGEEN MOSS.*

By J. Dalmon.

The author has for some time frequently observed in French commerce the mixture of *Gigartina acicularis* with carrageen moss (*Fucus crispus*, L.; *Chondrus polymorphus*, Lam.), and he states that he has received specimens of moss containing as much as 40 per cent. of it. The mixture is readily discovered upon a moderately careful examination.

The *Gigartina acicularis*, Lam belongs, like the *Fucus crispus*, to the order of Algæ, sub-order of Choristosporeæ. It is distinguished from the latter by its cylindrical, cartilaginous, subdichotomous, flexuous fronds, with acuminate most frequently bifurcated branches, sending out lateral horizontal spiniform branchlets. The concepticles are spherical, sessile, and thin. The mixture is also manifested by the light brown tint retained by the pedicels, which gives to the mass an appearance of a less uniform color than that presented ordinarily by carrageen.

Placed in contact with cold water, the *Gigartina acicularis*, absorbs it rapidly and in great quantity, and swells considerably. Treated with boiling water it dissolves, but in much less proportion than *Fucus crispus;* the jelly which it yields upon cooling is opaque, whitish, and without consistence. 100 parts of this alga leaves upon calcination 16 parts of a residue which retains the form of the plant. This ash dissolves partly in water. The solution is neutral; it is precipitated slightly by nitrate of silver, and abundantly by nitrate of baryta and oxalate of ammonia. The solution evaporated, and redissolved in alcohol and water gives, with phosphate of ammonia a crystalline precipitate. The insoluble part of the residue consists of carbonate

* *Répertoire de Pharmacie*, new series, vol. i, p. 696.

of lime and silica. Operating as above the following results were obtained :—

Chlorides of Sodium and Magnesium . .	0·60
Sulphate of Magnesia	1·20
Sulphate of Lime	6.60
Carbonate of Lime	5·40
Silica	2·20
	16·00

Calcination with potash and testing with an acid and starch showed no trace of the presence of iodine.

Practically the mixture of *Gigartina acicularis* with carrageen moss presents no advantage to the pharmacist, who would not obtain with this product a jelly presenting the consistence sought for in the preparation of jellies from carrageen. But the author considers that the remarkable quantity of lime salts which the *Gigartina* contains would render it a fairly active medicament in many cases, and especially in phlegmasies of the intestinal canal.—*Pharm. Journ. and Trans.*, *Jan.* 31*st*, 1874.

ON THE EFFECT OF GLYCERIN IN MODIFYING THE ACTION OF ASTRINGENTS.

By E. B. Shuttleworth.

There have been few additions to the materia medica, which, in so short a time, have attained a more universal popularity, have been applied to as manifold uses, or been more generally extolled than glycerin. Its powers as a solvent, equalling, if not exceeding, those of alcohol, have opened up a wide field of usefulness which has generally been entered upon with great advantage. It may be, however, quite possible, and even probable, that a property of such ready adaptability, and of so wide a range, has been to generally made use of; sometimes under circumstances in which its effects may have proved the reverse of beneficial. Of such a character is the indiscriminate employment of glycerin in the preparation of tinctures or fluid extracts of vegetable substances of complex composition ; when, though a presentable and permanent compound may be obtained, inert, or, perhaps, injurious agents, which would have been much better undisturbed, are dissolved and retained in solution.

It is not, however, to this modifying action that I would, at present,

call attention, but to an effect depending on another cause. Physicians who have been in the habit of using astringents—as tannic acid, and some of the preparations of iron—have noticed that when these substances are mixed with glycerin, a different, and much milder effect is realized than when an aqueous solution is employed. During the last few months, some of the pharmaceutical journals have alluded to this effect;* and, at the last meeting of the British Pharmaceutical Conference, it was made the subject of a short discussion.† It was then stated by the president, that he was aware of an instance in which three hundred grains of perchloride of iron, dissolved in glycerin, was swallowed, by mistake, without any ill effects. It is certain that a much smaller quantity, in aqueous solution, would have produced serious results. The common experience of physicians with regard to the comparative inefficiency of *glycerinum acidi tannici* was also alluded to. Again, at a meeting of the Pharmaceutical Society held Dec. 3rd,‡ it was stated as a well-known fact, that, if a greatly astringent effect is desired, the solution of tannin in glycerin must be diluted with water; and that the same is true in regard to the styptic action of a solution of perchloride of iron in glycerin. It was also stated that *glycerinum acidi carbolici* was much milder in action than an aqueous solution of similar strength. At the last meeting of the American Pharmaceutical Association the effect of glycerin on astringents was alluded to as having been noticed; as all these statements coincide with the opinions of observant physicians, this modifying action of glycerin may be recognized as an acknowledged fact.

It becomes interesting for us to ascertain the cause of this modifying action; and, in this endeavor, we may consider, first, the nature of the physiological and therapeutical effects produced by astringents; and, secondly, the effect of glycerin on the chemical properties of this class of remedies.

In regard to the first point we find the action of astringents is, in great part, if not entirely, to be attributed to their chemical agency. In most instances, these bodies have an affinity for certain constituents of the animal solids and fluids, and effect changes by direct combination. Pharmacologists are generally agreed on this matter, and it is

* Glycerin; by A. H. Mason, F. C. S., *Chemist & Druggist*, April, 1873, p. 119; and *Can. Pharm. Journ.*, No. lxii, p. 396.

† Pharm. Jour. & Trans., Oct. 1873; and Can. Pharm. Jour., Vol. vii, p. 172.

‡ Pharm. Journ. & Trans., Dec. 1873, p. 451.

thought that, whether applied externally or taken internally, these remedies have a more or less local action, producing astriction or corrugation of the tissues, or coagulation of the fluids. In regard to tannic acid,* Pereira says "Tannin acts on the animal tissues by virtue of its affinity for their constituents. It forms, with albumen and gelatine, compounds which are insoluble in water, and it also combines with fibrin; when taken into the stomach it unites with the constituents of the epithelium, and of the mucous membrane of the alimentary canal." It may therefore be assumed that astringents are in general merely chemical agents, and, if their anticipated effect is to be realized, their chemical composition must not be modified or disturbed.

In order to determine the chemical action of glycerin on astringents I have commenced a series of experiments, which has, so far, only been completed so as to afford indications of a definite and satisfactory conclusion. The substance chosen as best representing the class of vegetable astringents is gallo-tannic acid—the tannin of commerce; the mineral astringents may be aptly represented by the perchloride and persulphate of iron.

The effect of reagents on an aqueous solution of the *glycerinum acidi tannici* is precisely similar to that produced on a simple aqueous solution of tannin. The salts of iron, tartrate of potash and antimony, chloride of sodium, sulphuric and hydrochloric acids, and gelatin, give, in both cases, colorations and precipitates, alike in appearance. In order to ascertain the comparative power of the two solutions in precipitating gelatin, solutions equal in tannin strength were prepared, and it was found that an equal number of measures of the same solution of gelatin were required for precipitation.

Being unable to detect any difference in the behaviour of these aqueous solutions, a solution of tannin in glycerin, undiluted, was treated with solution of gelatin, and it was found that the tannin was *not precipitated;* or, at least, that only a small portion of the glycerin solution which was in immediate contact with the water contained in the solution of gelatin was so affected. This superficial layer of coagulum was, on the application of a gentle heat, immediately dissolved. This result is, so far, satisfactory, and affords a possible explanation of the fact before alluded to—that, in order to realize the full astrin-

* Elements of Materia Medica and Therapeutics, Vol. i., p. 98.

gent effect of the glycerin preparation of tannin, dilution with water is necessary.

I have not had time to pursue this subject further, or to examine into the effect, noted by some observers, that glycerin prevents the precipitation of some of the salts of iron by alkalies.

Speculating on this subject, and bringing to our aid those facts relating to the properties and affinities of glycerin which are already known we find that this substance is by no means chemically inert, not indeed sufficiently so as to admit of a general application as a solvent. The range of glycerin compounds is not at all a limited one, but quite extensive, comprising salts many of which are well defined, and which possess strong individual characteristics and properties. Of those are the simple compounds of glycerin and the inorganic and organic acids, or the more characteristic glycerides or glyceryl ethers. I would hazard the suggestion that when glycerin and tannic acid are left in contact for a considerable time, or when heat is applied in the pharmacopœial process, that glycero-tannic acid, or ether is formed. The distinguishing termination *in* applied to ethers of this kind would not, in this case, be appropriate.

I hope to resume this subject when sufficient leisure for further experiment presents itself.

Toronto, Jan. 10, 1874.—*Can. Pharm. Journ. Feb.* 1874.

ACTION OF OIL OF TURPENTINE UPON LEAD AND TIN.

By J. M. Merrick. B. Sc.

I was recently consulted by a manufacturer of paints as to what metal he could use for lining a large tank in which he intended to keep a stock of oil of turpentine. I advised the use of sheet lead, but he met that advice by producing a well corroded sheet of lead with which a turpentine tank had been lined, and a sample of a white powder which he asked me to examine. I found the powder to be an oxycarbonate of lead, and the paint maker said that after the tank had been used about forty days for storing turpentine, observing the lead to be corroded, he had the oil drawn off, and found a wheelbarrow load of this oxycarbonate of lead upon the bottom of the tank. The sample of oil of turpentine he exhibited was not perceptibly acid, but appeared to be in a normal condition.

Laurent (quoted in Gmelin's Handbook, xiv. 245) found white,

granular crystals of formiate of zinc on the covers of zinc boxes in which oil of turpentine had been kept, and Saussure (Gm. xiv. 247-8) found that in nine months one volume of oil of turpentine can take up one hundred and twenty-eight volumes of oxygen.

It is easy to see that the action of the turpentine in the case brought to my notice was simply that of a vehicle which conveyed the oxygen of the air to the readily oxidizable metal.

This matter lead to some experiments upon the action of acetic acid and turpentine upon tin, viz.: three pieces of pure sheet tin were tweighed and immersed respectively in glacial acetic acid, an acid of 50 per cent. glacial acid, and 50 per cent. water, and in oil of turpentine, reweighed at the end of certain periods, and the loss noted.

With Glacial Acid.				With 50 per cent. Glacial Acid.			
Wt.	Loss.	Loss p. ct.	Hrs.	Wt.	Loss.	Loss p. ct.	Hrs.
28·948				30·209			
28·780	·168	·58	24	30·204	·005	·00017	24
28·1435	·6365	2·21	70	30·191	·013	·0003	70
27·655	·4885	1·74	96	30·183	·008	·0002	96
27·545	·110	·39	100	30·180	·003	·0001	100
27·537	·008	·0003	104	30·173	·007	·0002	104
27·100	·437	1·54	118	30·163	·010	·0003	118

In turpentine, 40·024 grammes of sheet tin lost only ·001 grm. in 118 hours.

Laboratory, 49 Broad Street, Boston, Jan. 2, 1874.

—*American Chemist, February*, 1874.

OZONE—A NEW AND CORRECT METHOD OF SUPPLY.

The use of ozone as a disinfectant in hospital wards and public buildings has amply demonstrated its virtue as a purifier of air exhausted by breathing or poisoned with emanations from corrupt or decaying organic matter. The only bar to its more extended use has been the lack of a simple and trustworthy means of generating it, safely and continuously, by a process not involving scientific skill or costly materials.

The latest means suggested certainly bears the palm for simplicity, cheapness, and accessibility to all. It consists simply in the exposure to atmospheric action of common phosphorus matches moistened by water, the alleged result being the production of nitrite of ammonia and ozone—both active purifiers of air.

Knowing the efficiency of moistened phosphorus as a generator of

ozone, the author of the match method, Mr. Sigismund Beer, of this city, set out one day to procure a quantity of that substance to use in sweetening the atmosphere of a room whose musty smell had successfully resisted the power of ordinary disinfectants. Failing to find any phosphorus at the drug stores in his neighborhood, it occurred to Mr. Beer that possibly lucifer matches might furnish the needed element in a condition suited to his purpose. He tried them, dipping them into warm water for a few moments, then suspending them in the obnoxious room. Their effect was prompt and salutary; and thereafter, by continuing their use, he was able to enjoy "the luxury of pure and refreshing air," notwithstanding the room was in the basement of an old cellarless house on made land, the air of which was further tainted by a quantity of moldy books and papers. In a paper lately read before the Polytechnic branch of the American Institute, Mr. Beer narrates a number of subsequent experiments with the same simple materials, the success of which convinced him that he had made a veritable discovery of great importance.

Touching the safety of the method he proposes, Mr. Beer is confident that no overcharging of the air with ozone or other injurious matter may be apprehended from the use of matches in the manner he describes. Both the ozone and the nitrite of ammonia are generated slowly, and their force is swiftly spent by combination with the impurities they are intended to remove. It is obvious that the supply of the purifying agents can be easily regulated by increasing or diminishing the number of active matches. In the room above mentioned, six bundles of matches were kept active—some near the ceiling, others near the floor—by daily watering.

In another instance a single bunch is mentioned as having sufficed for quickly purifying the air of a room in which several adults and children were lying sick, but in this case the air was fanned against the matches while they were carried about the room, thus hightening their activity, How long a match retains its ozonizing power, Mr. Beer does not say. In conclusion, Mr. Beer claims that, whatever may be said of his theory of match action, the fact is indisputable that, in the use of matches as he suggests, we have a handy, wholesome, and inexpensive means of freeing our houses from noxious exhalations and the long train of evils attendant on the prevalence of bad air. The matter is easily tested and certainly well worth trying. —*Scientific American, February* 21, 1874.

Minutes of the Philadelphia College of Pharmacy.

PHILADELPHIA, 2d mo. 17th, 1874.

A special meeting of the Philadelphia College of Pharmacy was held this afternoon at the College Hall; 28 members present. Dillwyn Parrish, President. in the chair.

The President read a minute from William C. Bakes, Secretary of the Board of Trustees, announcing the appointment of a Committee of the Board to draw up a testimonial of respect expressive of our feelings in the loss of our colleague, William Procter, Jr., and to report the result of their labors to a special meeting of the College at an early day.

The Committee being present, signified their readiness to report, and Daniel S. Jones, Chairman, read the following testimonial of respect for his memory, and resolutions expressive of the great loss we have sustained in his sudden decease.

To the Philadelphia College of Pharmacy:

FELLOW MEMBERS.—We meet together to-day on an occasion in the history of this College when it is fitting that we should give expression to our sense of the bereavement which has visited us. In the providence of Him with whom are the issues of life and death, our associate and tried friend—our noble standard bearer—he in whom "was the excellency of our might"—has suddenly been removed from our midst.

On Tuesday morning, the 10th inst., the intelligence was spread among us that Professor Procter had died during the night. So overwhelming was the sense of the loss we had sustained, that our hearts were mute with grief.

Slowly, but not with less impressiveness, comes to us the realization that the voice, so lately heard in instruction and in counsel within these walls, is now sealed in death. While mourning a loss which seems to us almost irreparable, it is fitting that we should call to remembrance the many benefits which the life of our brother has bestowed upon us. For a quarter of a century his name has been inscribed on our banner, and we have found it a talisman of strength.

His life was characterized by earnestness of purpose, single-minded in pursuit of science, sincere in all his relations in life, loving Truth for Truth's sake; his enemies are unknown, but friendship is claimed wherever his name is spoken.

The record of his life is engraved on the character of this institution; our Journal is an enduring monument of the activity and ability of his genius. His name comes back to us from beyond the Atlantic in pharmaceutical literature with acknowledged authority. Well may the drapery of mourning be hung upon these walls, and our eyes turn in depressing sadness to the vacant chair.

It was not alone in his character as a teacher and author that Prof. Procter was known in this community. Modest and diffident even to the extent of rendering injustice to himself, he was amiable, courteous, approachable and ever ready to assist from his store of information and experience those who sought advice from him. Pretension was no part of his composition; facts were to him the only realities.

There can be no tribute paid more fitting to the character of our brother than the many hearts which mourn his loss. It remains for us to remember his example and to strive to emulate his labors, so that his life may be renewed in that spirit and power which he has left to us as an heritage.

RESOLUTIONS.

"Having been called to mourn the loss by death of our beloved fellow-member, Professor William Procter, Jr., we desire to express our deep sorrow and bear testimony to the high attainments and commanding worth of the deceased.

"*Resolved*, That in the death of Professor Procter, we feel this College has sustained a loss deeply to be deplored, the School of Pharmacy an able instructor, and our profession one of the most ardent and distinguished exponents of that science he so ably illustrated, and to which he devoted his life.

"*Resolved*, That we will ever cherish the memory of his bright example, his excellence of character in all the relations of life, his perfect integrity, sincerity and lofty purpose, his conscientious devotion to duty, and his faithfulness as a friend.

"*Resolved*, That the Committee on Deceased Members be instructed to prepare a memoir of Professor Procter for publication, that the history of his useful life, example and eminent services may be preserved and placed among the records of our College.

"*Resolved*, That a copy of these resolutions be transmitted to the family of the deceased, with the assurance of our heartfelt sympathy in this time of their great and sudden bereavement."

Daniel S. Jones,
Dillwyn Parrish,
Robert Bridges,
Chas. Bullock.
} Committee.

Philadelphia, February 17, 1874.

The reading of these papers was listened to with profound attention, causing a deep feeling of sorrow and sympathy to pervade the meeting, which was heightened by the solemnity of silence. A general feeling of sadness rested on all as the fact manifested itself that henceforth memory must be the only link between us and our ever-faithful and honored colleague.

Charles Ellis bore testimony to his worth and excellence of character, in a few appropriate remarks, and moved that the resolutions be signed by the officers of the College, and published in the daily papers; and also that a copy of them be engrossed, and sent by the Committee who prepared them to the family of the deceased.

Charles Bullock moved that a copy of the resolutions be sent by the Corresponding Secretary to the Colleges of Pharmacy and Pharmaceutical Associations in the United States. These resolutions were both adopted.

A letter was received and read from Joseph L. Lemberger, of Lebanon, Pa., regretting his inability to attend the meeting, and expressive of his sympathy in our great bereavement.

Professor Maisch suggested that it would be necessary to elect some one to fill the office of 1st Vice-President, now vacant, until the annual election in March next, in order that all the signatures of the officers may be affixed to the diplomas of the College soon to be issued to the graduates.

On motion of Charles Bullock, the President of the College was directed to cast a ballot for Peter Williamson as 1st Vice-President, which, being done, Mr. Williamson was declared unanimously elected to that office until the annual meeting in March next.

On motion, then adjourned.   William J. Jenks, *Secretary.*

Minutes of the Pharmaceutical Meeting.

The regular monthly meeting was held February 17th, 1874. Twenty members present.

On motion, Dillwyn Parrish was elected President, and the minutes of last meeting were read and approved.

Prof. J. M. Maisch presented a drug mill from the Enterprise Manufacturing Co., which is an improvement on the one first produced—the throat having been enlarged, and the whole japanned in black instead of red.

A paper on Pancreatized Solid Fat, by R. V. Mattison, was read, which produced considerable interest and discussion, and one experiment was tried, which resulted in proving that the emulsion was perfectly miscible with water.

A sample of what was called Oregon Balsam of Fir was exhibited, and Dr. W. H. Pile said that an article almost identical to the sample, could be made by the admixture of rosin and turpentine, in proportions that would produce a preparation equal to it in specific gravity.

A specimen of *Cypripedium pubescens*, was also shown by Prof. Maisch, which had been used to adulterate serpentaria.

Mr. Hazard presented to the College a beautifully crystallized specimen of sulphate of iron, which had been made from waste oil of vitriol and scrap iron from galvanizing works.

Prof. Bridges remarked that the copperas made from such iron was very apt to be pure, as it was necessary to clean the iron carefully before galvanizing it.

Prof. Maisch stated that he had successfully utilized spent sulphuric acid from oil of wine operations when in the U. S. Laboratory, and mentioned that B. J. Crew, some years ago, made a remarkably handsome sulphate of iron, by using waste oil of vitriol from petroleum operations.

E. McC. Boring wished to call the attention of the members to the Syrup of Fresh Orange Peel as made by the formula of R. Rother, Chicago. He said that it did not produce a clear syrup, but that the flavor was very agreeable; and that he cut off the outer rind of the orange (rejecting the white portion of the rind), and beat them to a pulp before subjecting to the solvent action of the alcohol.

S. M. McCollin said that he preferred to grate the oranges, mix with sugar and water, and then throw on a thick filter.

Prof. Maisch spoke of a German preparation, which was made by macerating orange peel in wine and afterwards adding sugar.

J. A. Heintzelman thought that the officinal orange syrup was the best, because physicians generally want the bitterness it possesses.

Owing to the lateness of the hour, on account of the College meeting relative to the death of Prof. Procter having been held first, a motion was carried to adjourn.

Jos. P. Remington, *Registrar.*

Pharmaceutical Colleges and Associations.

Commencements.—The commencement of the Philadelphia College of Pharmacy will be held at the Academy of Music, March 13. Prof. Bridges has been invited to deliver the valedictory address, in the place of Prof. Procter, deceased. The commencement of the New York College of Pharmacy will take place, at Association Hall, March 31st, and Prof. Bedford will deliver the valedictory.

Philadelphia College of Pharmacy.—Mr. Joseph P. Remington, who had been Professor Procter's assistant at his lectures, has been appointed to conduct the examination of the candidates for graduation in pharmacy. The Examining Committee, of which both Prof. Procter and Mr. Remington were members, was then constituted as follows:

W. J. Jenks, S. S. Bunting, Wm. McIntyre, A. P. Brown and Prof. J. M. Maisch.

On the evening of Feb. 11th, a meeting of the students was held to take action in regard to the death of the late Professor Procter. The class was deeply impressed with the loss they had sustained in the death of their valued teacher, whose genial disposition and faithful instruction had endeared him to all who came in contact with him. The following preamble and resolutions were unanimously adopted:

Whereas, It has pleased an All-Wise Providence to suddenly remove from our midst our worthy and beloved Professor Wm. Procter, Jr., who has so faithfully filled the chair of "Pharmacy" in this College; therefore, be it

Resolved, That we tender to the afflicted family of the deceased our heartfelt sympathy in their great bereavement.

Resolved, That the students of the College, who have listened with so much interest to his able and instructive lectures, and who feel so deeply indebted therefor, shall ever cherish in sacred remembrance his many deeds of kindness and arduous attempts to engraft in them the knowledge of our profession which he so largely possessed.

Resolved, That in the death of our esteemed Professor, who has so suddenly been taken from us in the midst of his duties, we, the students, have suffered an irreparable loss, and the College has lost an able and devoted fellow-member.

Resolved, That we attend the funeral at the residence in a body, and that a committee be appointed to accompany the remains to their final resting-place.

Resolved, That this preamble and resolutions be published in the different journals of pharmacy and in two of the city papers, and a copy be sent to the family of the deceased, and another to the Trustees of the College.

W. L. Harrison, Chairman; H. B. Hutchinson, Geo. C. Lescher, D. Ackerman, Jr., J. T. Seal, Committee.

Fred. B. Power, Secretary of the meeting.

Massachusetts College of Pharmacy.—At a meeting of the Board of Trustees, held February 24th, 1874, Samuel M. Colcord, President of the College, arose and said:

On the 10th day of February, 1874, in the City of Philadelphia, William Procter, Jr., passed from earth to his home in the spiritual world.

Probably no one in this country was so widely known and so dearly beloved by all who knew him as was William Procter, Jr., in all the ranks of the pharmaceutical profession. No pharmacist in this country has written so much, lectured so much, and performed so many public uses as has William Procter, Jr. As a writer, a journalist, a professor of pharmacy, an original investigator, a fearless exponent of Truth and sound doctrine in our profession, William Procter, Jr., stood unequalled. For the past quarter of a century he has been the recognized leader of all the public pharmaceutical work performed in this country.

Under his care the *American Journal of Pharmacy* came to outrank any other pharmaceutical journal in the world. The Philadelphia College of Pharmacy is greatly indebted to him for its success. He was one of the original founders of the American Pharmaceutical Association, and its success more than to any other person is due to the persistent efforts of William Procter, Jr. The United States Dispensatory contains constant reference to him as authority upon many points, and the United States Pharmacopœia in past years bears the marks of his masterly hands, but not so much as the work of its last revision shows the want of his presence on that Committee. William Procter, Jr, was the most noted man in our profession in this country; his earthly career has closed in the midst of his life of use, at the full height of his popularity; the record of his life is all clean progress professionally, morally, spiritually; there are left to us no *buts* and *ifs* to mar the glory of his fame; his life has been a life of use, strong and active, nothing of doubt, uncertainty or hesitation, but manly decision and persistent effort ruled his course. Possessing strong individuality, he left his mark upon all his work, but the element of selfishness is entirely wanting in all his associated efforts; every work of a public nature performed by him was done for the sake of use or from a sense of duty; this was his first view as well as his second sober thought. It might have occurred to him "can I afford it?" but never "can I make more money?" As a friend he was firm, constant and true; as an associate he gave more than he received; in conversation he was instructive, agreeable and entertaining; a remarkably good listener as well as a good talker, but whether in thought, word or deed, nothing of virtue value or use was ever sacrificed, diluted or modified for the sake of ornament. The fascination for naked truth with him was just in proportion to its power and force. Speaking for Pharmacy, I know of no man in our country who has done so much for our profession or who has accomplished so much in a life time. I know of no man who will be missed so much; I know of no man whose place it is so hard to fill; but his life on earth will stand on record as a practical example of what a pharmacist's should be, for our guidance; and to those of us who had the pleasure of a personal acquaintance, the name of William Procter, Jr., will ever live sacred in pleasant memories, honored and cherished as the embodiment of every manly virtue, the highest type of honesty and intelligence as a pharmacist.

Nearly a quarter of a century ago, when the Massachusetts College of Pharmacy was struggling for a place among the institutions of our country, William Procter, Jr., was her friend and counsellor; to the information, advice and encouragement which he has given us, we are indebted for much of our success. We feel this day that we have lost a friend, and while we mourn his loss, we desire to give expression and to offer sympathy to those to whom this severing of human ties and relationship is far heavier than to us. I therefore move the following resolutions:—

Whereas, William Procter, Jr., from a life of great usefulness upon earth has been suddenly transplanted to his heavenly home;

Resolved, That, as members of his profession, co-laborers in the same field of use, we lament our loss and mourn his removal from us.

Resolved, That by this sad event we mourn the loss of one to whom we were endeared by ties of personal friendship; a leader to whom we looked as authority for guidance; a journalist whom we delighted to honor as honest, intelligent and fearless, and an instructor who was thorough, reliable and patient; as a pharmacist living in the enjoyment of the perfect confidence of all who knew him, and perfectly reliable in every respect.

Resolved, That while filled with grief and sorrow at this earthly separation, we acknowledge and humbly bow to the Divine Will, which guides us in our efforts to do right in this world, and removes us from it at the best possible moment.

Resolved, That we tender our most earnest sympathy to the family of the deceased, the wife and children whom he so tenderly loved and cared for; and while we feel keenly the poverty of human consolation, we invoke for them a Savior's blessing and a Savior's care.

George F. H. Markoe, *Cor. Secretary.*

New Hampshire Pharmaceutical Association.—A meeting of about fifty pharmacists of New Hampshire was held, in Concord, January 22d, and organized by electing Charles A. Tufts, of Dover, President; C. F. P. Hildreth, of Suncook, Vice-President; G. F. Underhill, of Concord, Secretary, and H. B. Foster, of Concord, Treasurer. An Executive Committee of ten was also chosen. The gathering was considered a preliminary one, which will open the way for an early formation of a State pharmaceutical association. They want a law that will regulate the sale of medicines and allow druggists to sell spirits for medicinal purposes; they strongly oppose that feature of the New Hampshire Prohibitory law that gives one-half of the fines to the informer.

New York College of Pharmacy.—At the conversational meeting of Feb. 12th, Dr. Fr. Hoffmann delivered a lecture on the application of the microscope in pharmacy and the drug trade, and illustrated his remarks by exhibiting the sections of many drugs by the aid of an oxy-hydrogen stereopticon.

The decease of Prof. Procter having been announced, a Committee was appointed to represent the College at the funeral.

The New Jersey Pharmaceutical Association held a meeting at Jersey City Feb. 11th, which was well attended. We have not received an account of its transactions, but we are pleased to inform our readers that this Association has at last been successful in obtaining a pharmaceutical law. The "Newark Daily Advertiser," of Feb. 19th, announces this success in the following complimentary remarks:

After five years of hard work and steady perseverance the druggists of New Jersey have obtained the passage of their Pharmaceutical bill. Regularly every year a number of druggists have visited Trenton, urging its passage, but without success, and each year their number has become less and less, as continued defeats disheartened them. At the opening of this session a few druggists appeared, but again left, until Mr. C. H. Dalrymple, of Morristown, alone remained, and he urged the bill vigorously. By dint of carefully explaining it to the members individually he secured its careful consideration and passage. On the bill coming up in the House, having already passed the Senate, Mr.

Hemmingway moved to strike out the enacting clause, but withdrew it so that it might be recommitted. Mr. Smith objected, as did Mr. Kirk, the latter gentleman thinking that too many safeguards could not be thrown around the sale of drugs. Mr. Morrow thought the bill a good one, as did Mr. Howell, both gentlemen saying that the druggists should be given the bill, as a means to prevent, if possible, so many poisoning cases as were occurring of late. Messrs. Iszard and Patterson favored the bill, The motion to recommit was lost, as was also an amendment to relieve country storekeepers of having to pay a $2 charge for license. Mr. Skellinger offered an amendment that the law should not apply to townships of less than 2000 inhabitants, which was lost when the bill was passed, 38 to 19.

Maryland College of Pharmacy.—At the stated meeting held Feb. 12th, the following tribute to the memory of the late Prof. Wm. Procter, Jr., was offered by the President, Dr. John F. Hancock:

Gentlemen,—It becomes my painful duty to call your attention to an announcement that must strike keenly and deeply the cords of reverence and sympathy in every heart here present. It is the only sorrow from which the human heart refuses to be severed. A feeling of regret and sorrow comes over us when we see the icy hand of death placed upon a stranger; but what are our feelings when death comes to rob us of dearest loved friends? Can we look at their removal from our midst with hearts unaffected? No! Despite our efforts to disguise our feelings, which on such occasions spontaneously gush forth, and with full knowledge of the terrible power of the unwelcome messenger, our hearts soften with sorrow, and our heads bow in humble yet mournful submission to the will of Him who gives and who takes away. He to whose memory we are called upon to pay tribute was not a friend only but a benefactor also, not simply a benefactor of his personal friends, but also of his race. His escutcheon is as free of stain as is the spotless snow. We could not speak of his faults, were we so inclined, because we know of none. We knew him only as the true gentleman, the confiding and trusty friend, the kind and affectionate husband and father, the devotee of a humanitarian science which in its practical bearings is a part of that profession which the immortal Hippocrates pronounced to be the greatest of all arts. In his profession he was always a consistent, steady, honest and persistent workman. The fruits of his labors are familiar to all. As a pharmaceutical chemist, and as a journalist who recorded facts only so far as he knew them to be such; as a high-minded honorable gentleman, who was unconscious of his own merits because of the simplicity and innocence of his moral nature, the name of William Procter, Jr., will command reverence and respect wherever and whenever his name shall be mentioned in the presence of a pharmacist in any part of the civilized world. Should any person ever manifest so much ignorance as to inquire who was Wm. Procter, Jr., or what he accomplished, refer them to the volumes of the "American Journal of Pharmacy," which he so long edited, and to the Proceedings of the American Pharmaceutical Association, and implore them, not only to consult the general index of the works respectively, to ascertain the vast number of his original contributions, but to turn to the pages and read the communications, which cannot fail to afford much valuable information. If there are any under the sound of my voice who did not know personally our friend and benefactor, he who has done more than any other man in this country to elevate the moral and intellectual standard of pharmacy, by diffusing the purity of its literature, I would respectfully refer them to a fair sample of his unostentational characteristic language, as shown in his resignation of his position as Editor of the "American Journal of Pharmacy," dated Dec. 27th, 1870, and published in the "Journal" of that year.

After the reading of this communication, notwithstanding the resignation

occasioned expressions of regret on the part of members present, yet they knew the man so well that what he said he had good reason for and meant, though it was an unpleasant duty yet it was incumbent upon them to comply with his request. A similar prompt action was taken when he resigned his professorship in the College, an action on his part greatly regretted by his fellow-members. But did he continue to rest from his arduous labors in the College? No; for we find his accommodating disposition surrendering his hand and heart to the College on the death of his co-laborer and friend, the late Prof. Edward Parrish, and thus we find him in the full armor of his usefulness to within a few hours of his death. It seems that even death had a kind and tender consideration for him; for so tenderly did the messenger come and steal him away, that his family were scarcely permitted to witness the agony of death, and he passed from earth to Heaven more like a midnight dream than a stern reality. Is he dead; he whom we all loved so dearly, and whom we looked to as a father for counsel and advice? It is hard to realize the fact. He is not dead! The purity of his life, and his works (though his body has become as cold and as lifeless as the adamantine rock) will live imperishably in our immortal memories, and, like the brilliant sun, will wax brighter and brighter until the perfect day.

Let us emulate his example. At least, to the younger members of our profession this is possible, remembering always that true genius is not born but made.

Let us resolve at this time that his virtues, industry and honesty of purpose shall serve us as beacons on the bleak shores of the stormy ocean of our lives, so that when the golden bowl is broken and the silver cord is loosed we may join him in the better land.

Further remarks appropriate and eulogistic of the life and character of the deceased were made by Dr. A. P. Sharp and Prof. J. Faris Moore.

The Chair appointed Messrs. Moore, Sharp and Roberts to prepare suitable resolutions, which were approved, as follows:

Whereas, It has pleased the Almighty, in the inscrutable ways of his providence, to remove from his sphere of usefulness on earth our well-beloved brother and friend Prof. Wm. Procter, Jr., of Philadelphia; and

Whereas, It is proper and becoming that this body, devoted to the advancement of pharmacy, of which science he was such a bright and shining light, should express and make record of its consciousness of the great loss sustained, not only by our brother pharmacists of Philadelphia, but of the profession throughout the land; therefore be it

Resolved, That we have heard, with sincere and heartfelt regret, of the death of Wm. Procter, Jr., and in his demise feel that the cause of pharmacy has lost one of its ablest, most faithful and long-tried representatives; one whose life has been devoted to the interests of our science, and whose only ambition seemed to be to acquire knowledge and proficiency in his profession, that he might the better serve his fellow-workers in the same loved cause.

Resolved, That, as individuals, we who had the pleasure of his acquaintance can but feel that one near and dear to us has been called from our midst, occasioning a void that we look around in vain for one to fill so worthily and so well.

Resolved, That we tender to his sorrowing family our sincere sympathy and condolence in this the hour of their sad bereavement; but while we lament with them the irreparable loss, we mourn not as those who mourn without hope, for we can but feel that, though it is our loss, it is his eternal gain.

Resolved, That these resolutions be spread at large on the journal of the College, and a copy of the same forwarded to the family of the deceased, as evidence of our estimation of his worth and character.

The President delegated Dr. A. P. Sharp, Prof. J. Faris Moore, and Dr. Jos. Roberts to represent this College at the funeral.

Donations were received of "cosmolin," from Messrs. E. F. Houghton & Co., and an improved drug mill, from Enterprise Manufacturing Company, both of Philadelphia, to whom the Secretary was directed to extend the thanks of the College.

The Committee on Annual Meeting named March 19th for holding the same

J. Newport Potts, Rep. M. C. P.

Chicago College of Pharmacy.—At a meeting of the students of this College, held Monday, Feb. 16th, A. D. 1874, the following preamble and resolutions were unanimously adopted:

Whereas, We have learned, with unfeigned sorrow, of the death of Prof. William Procter, Jr., of the Philadelphia College of Pharmacy, in which he so ably and faithfully filled the position of "Professor of Pharmacy," and

Whereas, The loss of his valuable services to the students, the College, and the profession at large will be difficult to replace; be it therefore

Resolved, That we, the students of the Chicago College of Pharmacy, tender our sincere sympathy to the students of the Philadelphia College of Pharmacy in the loss of so able a teacher, and so true a friend.

Resolved, That we shall ever remember one whose many researches and able efforts in the cause of science and the elevation of the profession have justly entitled him to be acknowledged the "Father of Pharmacy" in America.

Resolved, That we all unite in regretting the loss of one who has been removed so early from the field of his usefulness.

Resolved, Therefore, that a copy of these resolutions be sent to the family of the deceased, to the students of the Philadelphia College of Pharmacy, class 1873–74, and to the "Pharmacist" for publication, and that these resolutions be filed in the archives of this College.

Chas. M. Ford,
H. W. Buchman,
E. L. Stahl, Jr., } Committee.
F. S. Smith,
Chas. E. Harlan,
Geo. H. Ackerman, Chairman.
H. A. Warner, Secretary.

The students of the Philadelphia College of Pharmacy have requested the publication of this communication in the "American Journal of Pharmacy."

Alumni Association of the Philadelphia College of Pharmacy.—At the stated meeting of the Executive Board, held Feb. 12th, 1874, a feeling of deep sorrow pervaded every heart on account of the great loss which the Association and the whole pharmaceutical world had sustained in the sudden demise of our eminent member, Prof. Wm. Procter, Jr. To give expression to these feelings, Joseph P. Remington was appointed to deliver an eulogy upon our distinguished member,—who was at once our warm friend, kind counsellor, and noble archetype,—at the public reception to the graduating class to be held on the evening of March 10th, 1874, at 7½ o'clock.

William McIntyre, *Secretary.*

Pharmaceutical Society of Great Britain.—At the pharmaceutical meeting held Feb. 4th, Mr. W. M. Holmes read a note on iodide of iron. A prescription calling for Potass. iodid., ℈i; Ferri iodid., ℈ss; Syrup tolut., ʒij; Aq. dest., ad ℥iv, was compounded by rubbing the iron salt with some reduced iron and water, filtering, adding the potassium salt, and then the syrup; a precipitate occurred in a few minutes. But if the syrup was added before the iodide of potassium, the mixture remained clear for several hours, and permanently clear if the free alkali of the iodide of potassium was neutralized by a little citric acid. The author suggests, instead of dispensing solid iodide of iron in mixtures, to dissolve an equivalent quantity of iodine in water, using an excess of reduced iron.

An interesting discussion followed involving the question whether the pharmacist is justified in such cases to make a slight addition to prevent a decomposition which would not occur if the materials were chemically pure. The majority of the speakers seemed to take this view, but the President, Mr T. H. Hills, suggested that the prescribing physician be informed of this necessary addition.

Messrs. Rimmington, Williams and Hills spoke of the tasteless iron preparations as recommended by Mr. J. L. A. Creuse (see Amer. Jour. Phar., 1873, p. 214 and 385). These being almost tasteless, beautiful and permanent compounds, they were recommended to be included in the proposed additions to the British Pharmacopœia, if this would not interfere with any patent right.

Mr. Bland called attention to the alkaline reaction of all commercial iodide of potassium, and believed there was difficulty in getting large-sized crystals when the salt was perfectly pure. Mr. Williams said it was quite true that if the solution was perfectly pure, bad and ill-formed crystals are obtained which the public will not have; in fact, it seemed to be the rule that the more impure the solution the better the crystals. Mr. Rimmington said that Mr. Southall had some years ago manufactured iodide of potassium in very large and transparent crystals; but Professor Redwood said that all specimens he had ever seen had an alkaline reaction.

Professor Bentley referred to *Larch bark* and *Areca nuts*, which are to be included in the forthcoming additions to the Pharmacopœia. The former is used as a tanning material, but has been recommended by Dr. Greenhow, about ten years ago, in the form of tincture, for checking profuse perspiration and in certain bronchial affections; in Ireland the bark, divested of its outer layer, is frequently employed in similar cases. Areca or betel nut is known in Great Britain for the charcoal it yields, and is used in the preparation of Ceylon catechu, which was formerly officinal in the Edinburgh Pharmacopœia. Areca nut has also been used as a vermifuge, and is a popular remedy in India, though it is but slightingly spoken of in the Pharmacopœia of India.

Professor Redwood said that a tincture made of one part of larch bark to eight of rectified spirit had been somewhat extensively used in Ireland, the dose being 20 to 40 minims. Areca nut is used in the form of powder in doses of four to six drachms, mixed with milk, and is regarded by some eminent members of the Medical Council as the most valuable remedy known at the present time for the expulsion of tapeworms.

Mr. Mackay has made tincture of larch bark as far back as 30 years ago. The bark should be deprived of the outer portion, and of the woody fibre sometimes adhering to it.

Professor Attfield asked whether the Pharmacopœia would indicate the fineness of powder in which areca nut was to be used; but Professor Redwood thought this not likely, except, perhaps, for the purpose of making tinctures, &c.; however, some pharmacists laid great stress on the very minute division of substances administered as powders, and now-a-days, as a rule, they were reduced to the finest state of division.

Mr. Urwick had found finely powdered areca nut without effect on pointer dogs, while the coarse powder proved effectual.

Mr. Umney said areca nut could be obtained in a powder which would pass through a sieve having 140 meshes per linear inch, powdered rhubarb through a sieve of 180 or 190 divisions, while powdered caraway would scarcely pass through a sieve much finer than 60 meshes per inch.

Mr. Candy said that the astringency of larch bark was presumably due to tannin. This, therefore, seemed to be a step in the opposite direction to what has been sometimes advanced, namely, the employment of active principles instead of crude substances. It seemed that the former were not always as active as the latter, or there would be no necessity for introducing this article.

Editorial Department.

Prosecution under the New York Pharmacy Act.—In the early part of January, eight apothecaries, who had refused to be registered in compliance with the law, were arrested, and afterwards fined $50 and costs.

Legal Decision against the Proprietor of a Quack Medicine.—We are indebted to the *American Agriculturist* for an advance proof of the following decision by Judge Davis, of the Supreme Court in New York:

January General Term.

David Richards, *Plff. and Appt.*
vs.
Orange Judd and others, *Deft. and Respt.*

Davis, *P. J.*
Donohue and Daniels, *J. J.*

Appeal from order of Special Term, striking out the complaint in this action, and dismissing the same with costs, for plaintiff's refusal to answer certain questions propounded to him as a witness pursuant to the order of the Court.

John L. Walker for plaintiff; Amos G. Hull for respondent.

Davis, P. J.:

The plaintiff alleges in his complaint, in substance, that he is and has for many years been the sole proprietor, owner and manufacturer of articles of medicines and merchandise generally and publicly known as Dr. Richau's Golden Remedies, which he has for ten years last past manufactured and put up and offered for sale and sold, and that by means of extensive advertising and the good qualities of such Golden Remedies he has secured large sales and profits.

He also alleges that the defendants are publishers of a monthly magazine, known as the *American Agriculturist*, and having a circulation monthly of two hundred and fifty thousand copies; that in November, 1872, the defendants published in their said magazine a certain libelous article in the following words: "Sundry Humbugs.—Our newer readers keep inquiring about the trustworthiness of this, that, and the other doctor for various diseases. We answer that every so-called physician, every medical institute or college or association that advertises medicine or medical advice, by circular or otherwise, is a quack—in short, a swindle. The whole tribe of those who advertise 'marriage guides,' 'female medicines,' 'advice to the young,' 'errors of youth,' 'eye doctors,' 'ear doctors,' consumption cures,' cancer doctors or medicines, etc., etc., are positively quacks and imposters, to whom it is unsafe to address even a letter of inquiry; also that the 'Golden Remedies' inquired about by several are nonsensical quackery. We have not room for a lot more of humbugs on hand, but will renew the war upon them in the next volume, and, as hitherto, we expect to shield at least all our readers from swindlers, and through them many other people."

The plaintiff alleged also that the defendants, by means of these words published as hereinbefore set forth, insinuated and meant to be understood by those to whom it was published and the public at large, as charging the plaintiff with being a quack, imposter and swindler, and that the said "Golden Remedies" manufactured solely by the plaintiff were wholly valueless and useless, and possessing no medicinal qualities whatever, and that by means of the publication the plaintiff has been injured in his reputation and in his business, and been deprived of custom and trade, and lost the sale of goods and profits which he would otherwise have made, to his damage, twenty-five thousand dollars.

The defendants, in their answer, admit in substance that they are publishers of the *American Agriculturist*, and that in December, 1872, they published the article under the caption of "Sundry Humbugs," above set forth. They allege also that the publication is substantially true, and was published with good motives and for justifiable ends. They also set out *in extenso* the circulars sent forth by the defendant with his "Golden Remedies," in which the plaintiff describes himself as a physician who has had a general practice in all parts of the world; and aver various facts tending to show that the alleged medicines of plaintiff are valueless as remedies for disease, being compounds costing but a few cents per bottle, and selling at several dollars, which the public would shun if the constituent facts were known.

The defendants propose in their answer to give evidence of all the various facts alleged both in justification and in mitigation of damages.

Issue being joined, the defendants upon affidavit procured an order and summons for the examination of plaintiff as a witness on their behalf before the trial.

On such examination the plaintiff testified that a bottle marked "Doctor Richau's Golden Remedy, No. 2," was one of the medicines he advertises and vends to the public.

He was then asked of what Balsam No. 2 is composed. He refused to answer the question, on the ground that it was irrelevant, immaterial and a secret in his trade.

The judge directed the plaintiff to answer the question.

He then answered: "It is a secret compound composed of various ingredients which possess great medicinal properties," and refused to state the names of the ingredients.

He then gave evidence showing that he was not a doctor of medicine, and had never received a diploma, and had not been engaged in a general practice of medicine in any part of the United States.

He then testified that he advertised "Doctor Richau's Golden Elixir de Amour, or Elixir of Love," and on being asked "of what is it composed?" he refused to answer.

The Court at Special Term, after argument, ruled that the plaintiff must answer the question that had been propounded; and on the question being repeated to him he answered: "It is a secret compound of various ingredients which possess great medicinal properties;" and refused absolutely to give any other answer.

On presentation of these facts to the Court it was held that the answer was evasive; and the plaintiff, under the advice of his counsel, refusing to give any other answer, the Court ordered his complaint to be stricken out and dismissed with costs.

By the allegations of his complaint the plaintiff had invited an issue as to the medicinal qualities and value of the "Golden Remedies."

The statement of the alleged libel, so far as it pointed directly to plaintiff or his remedies, was to the effect that his "Golden Remedies" are "nonsensical quackery," and it is chiefly of this statement that the plaintiff complains.

The defendants undertake by their answer to show that this statement is true.

No one can read the circulars of the plaintiff, as proved by himself on his examination, without observing the importance of the investigation sought to be made. It was competent to disprove the assertions of the circulars and of the complaint by ascertaining the ingredients of the several compounds for the purpose of showing that they possess no such medical virtues as are claimed by plaintiff. For instance, he asserts in his circular that his "Elixir of Love is composed of the most powerful ingredients of the vegetable kingdom—harmless, but speedy in restoring healthy action." And again: "It is the fountain of youth to old age, the rejuvenator of pristine vigor in the young; to the barren woman of our land it is a special blessing." Indeed, it is impossible to read the vulgar and in many respects shameful assertions and instructions that accompany the compounds of plaintiff without being struck with the vileness of the impostures. That he can bring an action of libel for injury alleged to be done to his trade in his medicines by denouncing them as arrant quackery, and at the same time protect himself against exposure by claiming them to be valuable secrets, is a proposition that cannot be maintained. Byrn *vs.* Judd, 11 Abbots, New Series; 11 New York, 347, New Series.

In the laudable exposure of such "humbugs" as the pretended medicine of plaintiff and others, the defendants take upon themselves great risks, and subject themselves to the annoyance of suits; but I think they are not exposed to any danger that courts will interpose any shield for the protection of parties guilty of fraud and deception of the public.

If the plaintiff did not choose to try the question of the true character of his "Golden Remedies," he should have kept out of a court of justice.

The order of the Court below was correct, and should be affirmed with $10 costs and disbursements.

OBITUARY.

Professor William Procter, Jr., died February 10th, of heart disease, at the age of 57. On the preceding evening he had lectured at the College, and retired near midnight apparently in his usual health; about half an hour later he had breathed his last. Attended by numerous friends, by the students and members of the College, and by delegations from the Maryland College, the New York College, and the New Jersey Pharmaceutical Association, his mortal remains were conveyed to Mount Holly, N. J. For a period of thirty-seven years his labors have aimed at raising the status of pharmacy, and have been of such importance and lasting value that the deceased may justly be regarded as the father of American pharmacy. In a future number we shall give a biographical sketch, referring for the present to the obituary notices contained in the preceding pages.

LABORATORY NOTES.

By E. B. Shuttleworth.

Use of Glycerin in the Estimation of Tannin.—The estimation of tannic acid by means of a solution of gelatin is generally a tedious and troublesome process. The precipitate formed is so slowly deposited that, without resorting to a filtration almost as inconvenient, it is difficult to determine the exact point when a sufficient quantity of the precipitant has been added, as also to separate the precipitate at the close of the operation. In order to ascertain the completion of the process, Wheeler* suggests that a tube, loosely closed at the bottom with sponge, be dipped into the solution; the filtered liquid which enters the tube is then tested with a further quantity of the gelatin solution. Muller† accelerates the clarification of the liquid by adding a certain proportion of alum. I have found that both these ends may be more easily accomplished by adding to the tannin solution a small quantity of glycerin. The precipitate by gelatin subsides more or less readily according to the concentration of the solution.

As I have noted in a previous paper,‡ the precipitation of tannin may be altogether prevented by employing a very large proportion of glycerin, so that it is probable that in using a lesser quantity a small proportion of the precipitate is retained in solution. In comparative examinations—and it is chiefly in this manner that estimations are made—this is of no consequence, as the loss may be determined when making the standard solution. Even with simple water the indications are not altogether reliable, and a certain allowance must be made, as the precipitate is not absolutely insoluble in water without the tannin is in considerable excess.

Fluorescence of the Acid Residue from the Manufacture of Ether.—Those who are practically acquainted with the preparation of ether may have noticed the extraordinary fluorescent appearance of the sulphuric acid remaining at the close of the process. I am not, however, aware that this property has ever been noted in any of the journals, and to those engaged in researches on fluorecence the fact may be of interest.

* Mem. Chem. Soc. iii, 319.

† Chem Centr. 1859, 42. Watts' Dict. ii, 765.

‡ Can Pharm. Jour. vii, 229.

The alkaline tincture of the root of *Gelsemium sempervirens ;* solutions of chlorophyll, sulphate of quinia, asphaltum or æsculin ; oil of peppermint treated after Flückiger's method ; various petroleum products, or other liquids in which fluorescence is very strongly marked, do not compare in intensity with the ether residue.

Viewed by reflected light, the liquid is of a deep green color, and appears to be perfectly opaque ; by transmitted light it is brownish-red. The degree of fluorescence is influenced by the purity of the alcohol which has been treated by the acid ; the intensity increasing with the impurities present. Methyl compounds, especially, have an intensifying effect.

Cement for Affixing Labels to Tin or other Metallic Substances.—Of the various formulæ which have been published, none have given such satisfactory results as that in which tragacanth mucilage is mixed with honey. Paste of this kind has, however, two disadvantages—tardiness in drying, and susceptibility to damp. I have found that by incorporating or triturating with the mixture a considerable proportion of dry wheaten flour, these disadvantages are very much reduced, and the adhesiveness and permanent tenacity of the film are perceptibly improved. I think that those who try this plan will have every reason to be satisfied with it. The following proportions may he used :

Tragacanth Mucilage, ...	10 parts,
Honey, ...	10 parts,
Flour, ...	1 part.

A cement possessing better damp-resisting properties, but having the disadvantage of not being permanently adhesive where the surface of the metal is at all greasy, and also being objectionable on account of its dark color and liability to disfigure the label, is formed by boiling together, until solution is effected, two parts of shellac, one of borax and sixteen of water. Shellac dissolved in alcohol will produce a cement having perfect damp-resisting properties, but the film is very apt to separate from a polished surface. Flour paste, to which a certain proportion of sulphuric acid has been added, makes a lasting paste, but the acid often acts upon the metal—especially if exposed to damp—and unsightly stains are produced, which penetrate the label. This paste cannot be used for ordinary colored papers, or with some colored inks. Mixtures of flour paste with molasses, syrups

or honey have been recommended, but are never reliable.—*Canadian Pharm. Journ.*, 1874, p. 305.

NOTES ON THE ARECA PALM.

Areca Catechu, L.

By John R. Jackson, A. L. S., Curator of the Museums, Kew.

Some interest having lately arisen amongst pharmacists with regard to the Areca palm (*Areca Catechu*, L.) owing to its proposed introduction into the British Pharmacopœia as an officinal plant, a few notes on the tree itself and its uses may not be out of place.

The Areca palm is a handsome tree growing to a height of from forty to sixty feet, with a slender, erect trunk, averaging from one to two feet in circumference. It has regular, pinnate leaves, and long, linear leaflets, of a rich, dark-green color. The circumference of the trunk is annulated or distinctly marked with the scars of the clasping petioles of former leaves. The fruits are each about the size of a hen's egg, consisting of a fleshy-looking drupe, which, however, on cutting is found to be very fibrous, containing a seed about the size of a nutmeg, and, like that well-known spice, ruminated or marked with thick, reddish-brown irregular lines throughout its entire substance. These fruits are borne in large bunches, springing from the crown of leaves. The spathe itself is used in some parts for making drinking vessels, for nailing over the bottoms of boats, and for various other purposes.

The tree is known best as the betel-nut palm, and is cultivated in nearly all the warmer parts of Asia for the sake of the seeds, which are not only chewed in large quantities by the natives in countries where they grow, but are shipped to countries where the palm is not cultivated. The annual average produce of one tree is said to be about three hundred nuts. The tree is largely cultivated all over India, as well as in China, but is more abundant, perhaps, in Malabar, North Bengal, the lower slopes of the mountains of Nepaul, and the south-west coast of Ceylon. In Travancore alone there are nearly ten millions of these trees, the annual value of the produce of which is estimated at £50,000 sterling. It is said that about 80,000 piculs of the nuts are annually produced on the coast of Sumatra. Many varieties of the betel-nut palm are known to the natives under different local names; the nuts also vary much in size, but their quality

depends upon their appearance when cut through, "intimating the quantity of astringent matter contained in them. If the white or medullary portion which intersects the red or astringent part be small, and has assumed a bluish tinge, and the astringent part is very red, the nut is considered of good quality; but when the medullary portion is in large quantity the nut is considered more mature, and, not possessing as much astringency, is not esteemed so valuable."

The nuts are usually gathered between the months of August and November. The seeds are removed from the husk and boiled in water. In the first boiling the water becomes red and thick, and this is afterwards evaporated into catechu, but whether it is imported into this country as a commercial article is uncertain. The mode of collecting the catechu in Mysore is thus described: "The nuts are taken as they come from the tree, and boiled for some hours in an iron vessel. They are then taken out, and the remaining water is inspissated by continual boiling. This process furnishes *kossa*, or most astringent *Terra japonica*, which is black and mixed with paddy husks and other impurities. After the nuts are dried they are put into a fresh quantity of water and boiled again; and this water being inspissated, like the former, yields the best or cleanest kind of catechu, called *coony*. It is yellowish-brown, has an earthy fracture, and is free from the admixture of foreign bodies."

For the purpose of chewing, the nut is cut into narrow strips and rolled up with lime in the leaves of the betel pepper. The mixture has a hot acrid taste, and aromatic and astringent properties. The habitual use of the betel-nut is considered by the natives to be very wholesome, but the effects are said by some to be due as much to the ingredients used with it as the areca nut itself. Its constant use causes the teeth to become black and the mouth and lips of a brick red color. In some parts of China the nuts, bruised and powdered, are mixed with the green food given to horses, and they are thus considered a preventive against diarrhœa. In the north of China small pieces of the nut are boiled and the decoction is taken as a domestic remedy in various visceral affections.

Though the use of the betel as a masticatory turns the teeth black, it is said to preserve them from decay in a remarkable manner, and this may be the reason why some English chemists have introduced the pulverized charcoal into this country as a tooth powder.

In Borneo the flowers, which are fragrant, are mixed with medi-

cines and used as charms for the cure of many diseases. In some parts of India the juice of the young tender leaves mixed with oil is applied as an embrocation in cases of lumbago, and a decoction of the root is a reputed cure for sore lips, so that whatever may prove to be the value of the areca nut as an anthelmintic in this country, it is certain that the tree is much esteemed for its numerous uses in the East. —*Pharm. Journ. and Trans., Feb.* 28, 1874.

METACHLORAL AND CAUSTIC PENCILS OF CHLORAL HYDRATE.

M. Limousin exhibited at the Société de Thérapeutique, Paris, some specimens of metachloral and also of pencils of hydrate of chloral. The metachloral had been obtained by treating one part of hydrate of chloral with three parts of concentrated sulphuric acid, and washing the insoluble product obtained as long as the washings gave an acid reaction. The metachloral was afterwards dried with chloride of calcium, and reduced to a fine powder. The caustic pencils were obtained by mixing the hydrate of chloral with a small quantity of gum, and then coating them with a slight layer of paraffin, in order to preserve them from the action of damp air.

Metachloral, or insoluble chloral, has the same formula as anhydrous chloral (C_2HCl_3O), of which it is an isomeric modification. It is less caustic than hydrate of chloral, and it has the great advantage over chloral of not attracting moisture, and consequently allowing the treatment to be confined to a limited surface.

M. Dujardin-Beaumetz said that he had employed metachloral and recognized in it considerable advantages; he preferred it to iodoform, and he had obtained with it equally satisfactory, if not superior, results. Moreover, metachloral did not present the inconvenience which resulted from the penetrating and insupportable odor of iodoform. M. Beaumetz added, that in any case where the action of the powdered metachloral was found to be too irritating, its energy might be mitigated by mixing with it a certain quantity of lycopodium or other inert powder. He added that he had used the pencils of hydrate of chloral with advantage for the superficial cauterization of certain ulcerations. He also introduced them into the natural cavities, or into the fistulous passages of white tumors, to obtain the diminution and sometimes the cessation of local pain.—*Pharm. Journ. and Trans., Feb.* 21, 1874.

TINCTURE OF PHOSPHORUS.

This has lately been occasionally prescribed in Great Britain and in this country. The editor of the *Pharm. Journ. and Transactions*, who had been applied to for its formula, says in the issue of Feb. 21:

"The following formula given by Dr. Ashburton Thompson, in a paper 'On the Use of Phosphorus in Neuralgia,' published in the *Practitioner* last October, is probably what is sought by our correspondent:

'Phosphorus,	1 grain.
Absolute Alcohol,	5 drachms.
Glycerin,	1½ ounces.
Spirit of Wine,	2 drachms.
Spirit of Peppermint,	2 scruples.

'Let the phosphorus be dissolved in the alcohol with a little heat: at the same time warm the spirit and glycerin together. Mix the two solutions while hot, and add the spirit of peppermint on cooling. One drachm of this mixture contains one-twelfth of a grain of pure phosphorus. These ingredients form a mixture perfectly bright and clear, possessing almost no phosphoric odor or taste, and of a high degree of stability, even under exposure to light. The amount of spirit gives it a burning taste which may be sometimes objected to; but if the patient be warned of this, probably no further remark will be made about it. So far from causing offensive eructations, it seems to have a tendency to arrest existing flatulency.'"—*Pharm. Journ. and Trans.. Feb.* 21, 1874.

CROTON CHLORAL.*

By Alfred H. Mason, F. C. S.

(Vice-President of the Liverpool Chemist's Association.)

A new remedy, with chloral as its basis, and introduced by the discoverer of the therapeutical application of hydrate of chloral, naturally commands attention. At one of our general meetings in 1872 session, I exhibited a specimen of this, then new, compound, named by Professor Liebreich croton chloral hydrate.

Within the last few months this medicine has commanded much

* Read at the evening meeting of the Liverpool Chemist's Association, Feb. 12, 1874.

more of the attention of medical men, so that the requirements of it somewhat exceed the first demand for its predecessor when sold at about the same price.

Crotonic chloral was discovered somewhat accidentally by Drs. G. Kraemer and A. Pinner.† These gentlemen were undertaking experiments on the action of chlorine on aldehyde, chiefly in the hope of thus obtaining chloral, and of being able to utilize the valueless residue from the first runnings obtained in the distillation of crude spirit, which consists mainly of alcohol, aldehyde and paraldehyde.

Chlorine was passed into aldehyde, at first carefully cooled in a freezing mixture, and only heated to 100° at the close of the reaction. The first few bubbles caused the separation of a small quantity of solid met-aldehyde, whether originally present in the aldehyde or formed by the reaction, is undecided. After a short time evolution of hydrochloric acid set in and every trace of chlorine was absorbed. With 100 grams of aldehyde, at the end of twenty-four hours, no further absorption took place even at 100°. The resulting brown mass consists of two layers: a lower, darker, almost solid; and an upper, lighter-colored, liquid layer. The latter is a saturated solution of hydrochloric acid and the bodies of the lower layer in water. As it was found impossible to separate these two well, the whole was submitted to distillation. A considerable quantity passed over between 90° and 100°; the thermometer then rose rapidly to 160°, and the main product distilled over between this and 180°; the temperature again rose to about 240°, but only decomposition products were obtained, and a considerable carbonaceous residue remained in the flask. By means of fractional distillation the portion boiling at 160° to 180° was quickly purified, and a body boiling at 163° to 165° was isolated, which proved to be crotonic chloral.

The specimen I have here was produced by passing perfectly dry chlorine gas over pure aldehyde (C_2H_4O)—the action is very violent, and many precautions have to be taken to prevent explosion and to condense the volatile products of the reaction, and still to allow the enormous quantities of hydrochloric acid gas to escape. After a time the liquid thickens; at this stage the current of chlorine can be passed through the liquid. After another interval it becomes necessary to warm, and at last to boil the liquid through which the chlorine is

† Ann. Ch. Pharm., clviii, 37.

passing. At length hydrochloric acid ceases to be evolved, and crude croton chloral is obtained—the process taking about forty-eight hours to complete. This crude body is *mainly* ordinary chloral, but mixed with a variety of other products. By fractional distillation and treatment with sulphuric acid—true croton chloral ($C_4H_3Cl_3O$)—trichlor-crotonic aldehyde is obtained. This is a dense oily liquid of peculiar odor, somewhat recalling ordinary chloral: treated with a considerable excess of warm water it hydrates and dissolves, and, upon cooling, croton chloral hydrate ($C_4H_3Cl_3O,H_2O$) is deposited, but still in a crude form, most rank and offensive in flavor. It has to be purified by rather a tedious process, and is obtained, when pure, in beautiful white silvery crystals, with a sweetish melon flavor, which melt at 78° C.

From this it will be quite evident (and it is probably wise to note it) that this body does not bear any relation to croton oil, or crotonic acid, obtained therefrom, although its chemical constitution proves it to be the chlorated aldehyde of crotonic acid.

Croton chloral is the substance represented by the same term in the allyl (C_3H_5) group that chloral has in the ethyl (C_2H_5) group. Its outward appearance differs from hydrate of chloral by the salt being much lighter, and in flocculent silvery crystals—by its being almost insoluble in cold water and very soluble in alcohol; it is soluble in hot distilled water, and rendered more easily so by the addition of 25 per cent. of pure glycerin; it is insoluble in chloroform.

It will be remembered that hydrate of chloral owes its value as a medicinal agent to the supposed elimination of chloroform when it comes in contact with the alkalies of the blood, it having been shown that by reaction with alkalies chloroform is produced. Crotonic chloral, when subject to the influence of an alkali, first forms allyl-chloroform, a trichlorated body which is rapidly decomposed into a bichlorated substance called bichlor-allylene. In a communication to the *British Medical Journal*, December 20, 1873, Dr. Liebreich says:—"Both chloroform and trichlorated substances act in the first stage upon the brain; in the second, on the spinal cord; in the third, on the heart."

Although Dr. Liebreich's theory has met with and still finds general favor, there are many medical men who think it has not any valid support, believing that chloral exercises a specific action of its own upon the organization, which is not to be reasoned out from an exclusively chemical basis.

The medicinal advantages of hydrate of croton chloral over ordinary hydrate of chloral are : 1st. In cases where hydrate of chloral is inapplicable on account of heart-disease (it does not interfere with the action of the heart). 2d. In cases of neuralgia in the district of the nervus trigeminus (it is a remarkable phenomenon that when given in small doses it produces anæsthesia of the fifth nerve, singling out one nerve, and that one alone, while the sensibility of the body generally and pulse and respiration remain unaffected). 3d. In cases where very large doses are necessary to produce sleep, here Liebreich recommends the addition of croton chloral to hydrate of chloral.

Dr. Burney Yeo, of King's College Hospital, London, etc., is making a systematic investigation on the value of this medicine, and he lays his first communication in a paper published in the *Lancet*, January 31, 1874; he administered it in six different classes of cases, and gives details of each. The results he has arrived at are, that in croton chloral we possess a remedy of remarkable efficacy in some cases of neuralgia of the branches of the nervus trigeminus, and that it also has the power of affording relief in other obstinate forms of neuralgia; that it is of use in certain cases of diffused muscular pain; that there is scarcely any remedy that is likely to prove more valuable for the relief of the distressing night cough of chronic phthisis. Its efficacy in procuring sleep seems very variable in moderate doses; its effect in purely rheumatic cases is scarcely appreciable, while for hysteria it is of little or no use.

Dose.—Dr. Yeo says :—"I am satisfied that in dealing with this substance we must give an unusually wide range to the dose, for its effects vary greatly. The doses I have given varied from one to ten grains. In delicate females I have found very decided effects from doses of two and three grains ; in strong males a dose of ten grains is often required to produce any appreciable effect. As may be expected, persons who have been accustomed to the use of anodyne medicines require larger doses than others."

The dose must always be proportionate to the severity and long continuance of the pain. I would advise that it should be always given in moderate and quickly repeated doses, until the amount of "tolerance in the medicine in each particular case has been discovered. In severe neuralgias, from two to five grains may be given every hour, or the smaller dose every half hour, until fifteen grains

have been taken. At present I do not think it safe to go beyond this dose."

I have made several experiments with different solvents to present this medicine in a convenient form for dispensing, and before seeing Dr. Yeo's paper I found that the addition of glycerin was of great assistance in making the solution. I can fully endorse his decision. The following formula yields the strongest solution that is permanent:

Croton Chloral Hydrate, . . .	64 grains.
Pure Glycerin, ...	$\frac{1}{2}$ ounce,
Hot Distilled Water, . . .	$1\frac{1}{2}$ " .

A syrup can be made containing two grains of croton chloral hydrate in the fluidrachm, by adding four ounces of simple syrup to the above solution, and the disagreeable taste may be removed by any flavoring the pharmacist sees fit to add.—*Chemist and Druggist, Feb.* 14, 1874.

RHEUM OFFICINALE.

By Professor Baillon.

The following information respecting the new species of *Rheum*, which is now considered to be the true origin of the officinal rhubarb, has been supplied by Professor Baillon to M. Regnaud for insertion in a new edition of Soubeiran's "Traité de Pharmacie."*

"Besides the *Rheum Rhaponticum*, which yields the Rhapontic rhubarb, Linnæus recognized four species of the genus *Rheum*, to which have successively been referred the origin of the true rhubarbs of China and Russia. These were the *Rheum Rhabarbarum* (afterwards named *R. undulatum* by Linnæus himself), *R. compactum*, *R. palmatum* and *R. Ribes*. The latter, to which has been attributed the origin of Persian rhubarb, or rather of the products which are received through Persia, has never been more than a culinary herb. As to the three other species, they have all contributed (from the root) certain European and native rhubarbs.

"A species more recently discovered in India, *R. Emodi* or *R. australe*, has, like the preceding, been considered to yield the Chinese and Russian rhubarbs; but it would appear that it only produces a kind peculiar to India.

"As to the true plant, a native of Thibet, which furnishes to com-

* "L'Union Pharmaceutique," vol. xv., p. 21.

merce both the Russian and Chinese rhubarbs, it has only been known since 1867, in which year M. Dabry de Thiersant, consul-general of France at Shanghai, procured from Thibet some stalks of the species which yields this valuable drug, and which, cultivated in the garden of the Faculty of Medicine at Paris and in the Vallée de Montmorency by M. Girandeau, have received from M. H. Baillon the name of *Rheum officinale*. It is a very large species, exceeding a man in height, and remarkable for the considerable development of its inflorescence. The flowers are whitish, having a very deeply concave receptacle, with a marked perigynic insertion of the stamens, which in other respects resemble those of all the genus *Rheum*. The gynæcium is inserted profoundly in the most depressed portion of the receptacular cavity, and the edges of this cavity are furnished with well-developed unequal glands of a beautiful green color at their summit. The leaves of this species answer perfectly to the indications formerly given by Bokharian and Chinese merchants to Pallas and others concerning the true officinal rhubarb plant, namely, that the leaves have a limb of a delicate green color, in shape like an open fan, and also as analogous as possible to that of the leaves of the *Ricinus communis*. It is by this that the species is especially distinguished from *R. palmatum*, to which more than any other the origin of this medicament has been referred in recent times, upon the authority of Guibourt. But the leaves of the latter are whitish, unequally trilobed, and more or less pointed at the top. The *R. officinale*, however, belongs to the same botanical section as *R. palmatum*, as well as *R. hybridum* and *R. dentatum*, which are different plants, but have the same nervation. Here the nerves diverge at starting from the base of the limb, they are then palmate, and the two lateral nerves are destitute on the outside, for a certain distance from their base, of all parenchyma. Above this point the base of the parenchyma forms a kind of auricle, which renders the limb markedly cordate at the base. The dimensions of the limb extend to nearly a metre in each direction; it is, however, a little broader than it is long, and the petiole is about the same length. In the plants that have been raised, some leaves have been noticed which were more than a metre and a half long. Their edges are unequally divided into triangular lobes a little unequal among themselves, and the nerves, ramified and prominent beneath, are in this species, together with all the surface of the parenchyma, entirely covered with a fine white down. When

the plant has become fully developed it has scarcely any roots, for these are gradually destroyed, and the plant draws its nourishment from the soil only by small adventitious roots which could not be employed in medicine. But, contrary to the other species enumerated, and of which the root can be prepared and employed, this developes above ground a stem and cylindro-conical branches, 20 or 30 centimetres high, and of the thickness of an arm or a leg. These are the only portions which, cleansed from the so-called bark, divided transversely and longitudinally, and properly dried and prepared, can be used in medicine. They bear leaves, and after the fall of these, there remains on the surface only the brown dried base of the petioles, together with the remains of the ochrea ; these vestiges together constitute the pretended bark.

"In the axil of each of these aërial leaves there is necessarily a bud. These acquire frequently a considerable development, and are elongated into leafy branches ; such is the cause of the ramification of the aërial portions of this plant. Each of thes buds, detached at a suitable season, will in its turn easily take root from its base, and may thus be used to multiply the plant. Since each of these buds sends off a collection of cellular, fibrous and vascular elements, which it directs obliquely across the true fleshy, spongy bark, towards the ligneous axis of the stem, this, as well as the large branches, is permeated by oblique systems having the same structure as the branches. The presence in the true Thibet rhubarb of the stellate spots which are seen in sections, answers, therefore, precisely to the morphological nature of the portion employed as a medicament."—*Pharm. Journ.* (*Lond.*), *Feb.* 28, 1874.

ADULTERATIONS OF COFFEE, TEA AND PEPPER.

At a recent meeting of the Chemical Society, London, Mr. J. Bell gave some interesting particulars about the adulteration of these articles.

The adulteration of coffee can only be successfully accomplished after it is roasted and ground, but has, perhaps, been carried to as great an extent as in almost any other article of food. A very simple way of detecting the presence of chicory in coffee is to sprinkle a little of it on the surface of water in a test tube or wine glass, when each particle of chicory becomes surrounded with an amber colored

cloud, which spreads in streaks through the water until the whole acquires a brownish tinge; with pure coffee, however, no cloud is produced until the lapse of about a quarter of an hour. Another method of detecting adulteration is by the depth of color obtained by the infusion of a given weight of the suspected article in water, and by the density of the infusion. The use of the microscope, however, is indispensable. The ash of coffee, remarkable for the minute quantity of silica it contains, and for the absence of soda, afforded a valuable indication of its purity.

Adulterations of Tea.—Tea is adulterated to a very large extent, not only with leaves of various kinds, including exhausted tea leaves, but also with inorganic substances, such as quartz, sand, and magnetic oxide of iron; these latter substances are rolled up inside the leaf, and one sample of green tea examined was found to contain no less than 20 per cent. of quartz and 8·6 of the magnetic oxide. The latter may readily be separated by grinding up the tea and removing the magnetic oxide with a magnet. The facing employed for green tea usually consists of French chalk and Prussian blue. In the preparation of exhausted tea leaves, they are rolled up with gum water and then dried, catechu being added in some cases to restore the astringency. The article known as the "maloo mixture" consists essentially of exhausted tea leaves. In searching for the presence of leaves other than those of the tea plant, the best method is to heat a small quantity of the suspected tea with water until the leaves are sufficiently softened to admit of being unfolded. They should then be spread out on a piece of glass and carefully examined as to the nature of the serrations and the character of the venation, also the appearance of the epidermis and the stomata, and the peculiarities of the hairs as shown by the microscope.

Adulterations of Pepper.—The two kinds of pepper, known in commerce as black and white pepper, are derived from the same plant, but differ in the latter being bleached, or having the husk removed by washing; but neither kind can be adulterated with success before it is ground. The most common adulterants for ground pepper are linseed meal, the husks of mustard seeds, rice, bean and pea meal, and the flour and bran of the ordinary cereals, ground chilies being added to restore the pungency. Some of these substances can be readily detected by diffusing the pepper in water, and pouring the mixture on

to a muslin sieve. The deep red particles of the chili can then be recognized, and also the camphor-like fragments of rice. The mustard husks are known by their cup-like shape, while the smooth shiny appearance of the linseed readily distinguishes it from the dull brown of the pepper.—*Scientific American*, 1874, p. 197.

GHAZEEPORE ROSE-WATER.

The following interesting information on the cultivation of roses and the preparation of rose-water at Ghazeepore has been taken from the Catalogue of the Indian Department at the Vienna Universal Exhibition, for which it was written by Mr. R. Saunders:

The roses from which the celebrated Ghazeepore rose water is distilled came originally from Bussorah. These roses were first transplanted from Persia, and brought to the ancient, but now ruinous, Hindu city of Kanauj on the Ganges, and thence to Ghazeepore.

Somewhere about a century ago, Shaikh Abdullah (the father of the last Nawab Fuzl Alee Khan) made the first trial of a rose plantation in the vicinity of the city of Ghazeepore. Having experimented on a very limited scale in his own garden, he discovered that the soil of the environs of Ghazeepore was admirably adapted for rose cultivation, and since that period it has by degrees been extended.

The celebrity of the Ghazeepore perfumes prepared from these roses very soon spread throughout India, and to other countries, while to this day they have been held in the highest possible esteem on account of the permanence of the odor, and the peculiar delicate fragrance of the scent for which they are specially appreciated in the mercantile world. Year after year traders come from immense distances to work temporary distilleries, for the season only, in order to replenish their stock of these delicious and precious rose-scents.

Culture of the Roses, and Plantation of Rose Gardens.—Unlike the propagation of the specimen roses of England, which depend chiefly on grafting, these rose trees are raised from cuttings which are planted out from nurseries after one year's growth at an expense of Rs. 25 per beegah. These slips are watered every five or six days till the setting in of the rains, and when once they have taken root they are finally transplanted to the field intended for the rose-garden. Here each rose tree is planted three feet apart from the other, and

on an average 1000 shrubs are allowed to grow in each beegah of land.

Rose fields are kept scrupulously clean by constant weeding, and loosening of the soil around the roots. This operation takes place about three times a year. Leaf-mould, which is the best sort of manure for roses, is sprinkled all over the fields once a year, and twice a year the fields are irrigated by flooding them with well water. Priming takes place annually in the month of January. The flowering season is in February and March, when the blossoms are picked and collected each day before sunrise.

The average yield of flowers per beegah is from thirty to sixty thousand. These are sold to the distillers at a rate varying from 100 to 125 rupees per lakh (hundred thousand) of flowers. The total area under rose cultivation in Ghazeepore is estimated at about 200 acres, bearing an average rental of Rs. 4 per beegah.

Process of Manufacturing the Pure Attar of Roses.—A gallon, or half a gallon, of the best rose-water is kept in a large copper vessel in the cool night air, with a thin cotton covering over it. Before daybreak the oily extract floating over the surface of the water is carefully collected with a pigeon's feather and placed in a phial.

The next day fresh flowers are added to the water, and it is again distilled, and the same process is continued for several days successively, till as much pure attar of roses is collected as is required. The whole quantity thus collected is kept in a phial and exposed to the sun for a few days, and as soon as the watery particles have evaporated, pure oil, or attar of roses is left in the phial, which sells by weight at Rs. 100 to Rs. 125 per tolah. This sort of attar being costly is generally made only to order, and the ordinary quantity produced each year rarely exceeds five or six tolahs. The rose-water left after eight or nine distillations again comes into use, and is sold in the market as the best of its kind. It is, in fact, a clear profit to the manufacturer, who is already amply repaid by the attar itself. The prime cost of a tolah of attar is fairly estimated at Rs. 72, viz.:

Cost of labor, ...	Rs.	12	0	0
Value of 50,000 rose flowers, at Rs. 120 per lakh,	Rs.	60	0	0
Total, ...	Rs.	72	0	0

The margin left to the manufacturer after covering the cost of inte-

rest on outlay does not fall far short of forty or fifty rupees per tolah, which it must be admitted is not at all a bad profit on the transaction.

Manufacture of the Alloyed or Ordinary Bazar-Sold Attar.—Sandal wood is well pounded and mixed with water, and then subjected to the usual process of distillation with roses. This gives a greater quantity of oily substance than could be expected from roses only. The same water is distilled over and over again with an additional quantity of fresh flowers as many times as suits the fancy of the manufacturer.

The value of this attar rises in proportion to the number of distillations, and the best of the kind sells at Rs. 10 per tolah down to the lowest rate of Rs. 2 for the inferior sorts. The process of collection of this attar is the same as that of the other, the only difference between the two being in the admixture or not of sandal wood oil.

It is difficult to estimate with any degree of accuracy the quantity of alloyed attar annually produced in Ghazeepore, for a large number of outsiders come every year, stop for the season only, and then carry off what they produce. Probably a maund would be near the mark, but the value cannot be accurately computed, owing to the great variety of rates for the different qualities manufactured.

Manufacture of Plain Rose-Water.—The process is simple, but the varieties are great, according to the number of flowers allowed to each distillation. The ordinary rose-water is sold in huge spherical glass receptacles called "karábás," each containing 14 quart bottles. The average selling price of ordinary rose-water varies from Rs. 2 to 12 per karábá, and English quart bottles from eight annas to eight rupees each.

The usual cost of labor for each distillation yielding 24 bottles is one rupee. During the season numerous temporary rose-stills are worked by traders from different parts of India. Consequently it is very difficult to make even an approximate estimation of the actual quantity produced, but it is supposed to be somewhere between two and three hundred maunds.—*Pharm. Journ.* (*Lond.*), *Feb.* 7, 1874.

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THE BALSAM OF LIQUIDAMBAR STYRACIFLUA.

By William Landon Harrison, G. P.

An Inaugural Essay.

This balsam, commonly known as sweet gum, is a natural exudation from *Liquidambar styraciflua*, a tree belonging to the natural order *Hamamelaceæ*, sub-order *Balsamifluæ* (Gray). It is indigenous to nearly all parts of the United States, growing most abundantly in the southern portion. It seems to prefer moist localities, as swamps, the banks of rivers, etc., though it is often found in elevated situations and quite distant from water. In favorable situations, and when matured, it reaches the height of fifty to sixty feet, with a diameter of two to four feet.

The trunk is covered with a grayish, deeply-furrowed bark, and the branches have thick corky ridges running their entire length. The leaves are palmate, deeply five- to seven-lobed; lobes pointed, smooth and shining; of a bright green color, becoming crimson in autumn.

The flowers are mostly monœcious, in globular heads or catkins; the sterile arranged in a conical cluster, naked, stamens numerous, filaments short. The fertile flowers consist of many two-celled, two-beaked ovaries, subtended by minute scales in place of calyx, all more or less cohering and hardening in the fruit, forming a spherical catkin; styles two; ovules many, but only one or two perfecting.

The balsam is obtained from incisions in the bark. As it first exudes it is of a yellowish color, and of the density of thick syrup; by standing it thickens, and after some time becomes darker in color and finally perfectly hard. On being broken, in the latter state, the fracture presents a variegated appearance, from a dark brown to

spots of a pure white color. It has a pleasant benzoinic odor, and a balsamic and somewhat burning taste. It is soluble in alcohol, ether, chloroform and fixed oils: its alcoholic solution slightly reddening litmus paper.

With the view of ascertaining its constituents, a specimen, collected in south-eastern Virginia, was submitted to the following treatment:

Four ounces avoirdupois of the balsam, in a semi-liquid state, was distilled with an aqueous solution of sodium carbonate as long as any oil continued to come over. The distillate contained, floating on the surface of the water, about half a drachm of colorless oil.

The liquid remaining in the retort was filtered from the resin, and sulphuric acid in slight excess added to decompose the cinnamate of sodium. The result was a copious deposit of a light yellowish color. This was collected and washed on a filter till free of sulphuric acid; it was then dried and heated with hot petroleum benzin, which dissolved all except a little brown resinous matter. The benzin solution, while still hot, was decanted into another vessel, and allowed to cool. It was then found to have deposited all the acid, in small, perfectly white, needle-shaped crystals.

The liquid filtered from the precipitate, obtained by decomposing the first solution by sulphuric acid, appeared quite cloudy, and by tests was found still to contain some cinnamic acid. It was carefully evaporated to dryness, and the residue treated with boiling benzin, which, on being decanted and allowed to cool, deposited a small amount of a white amorphous powder. This was collected, and all the benzin having been removed by careful heating, was boiled with a small quantity of water. It was readily dissolved, the solution giving an acid reaction, and on cooling deposited quite a quantity of long, colorless, acicular crystals. These were dried and treated with hot benzin, which at once dissolved them, and on cooling deposited them in the usual-shaped crystals of cinnamic acid.

As the decompositions in its amorphous condition were identical with those of crystallized cinnamic acid, and as it was converted into a crystalline state simply by dissolving in water, in its amorphous condition it must have been cinnamic anhydride.

The amount of impurities in the balsam (consisting of pieces of bark, dirt, etc.), was 160 grs.; this deducted from the original weight, 4 oz. avoirdupois, leaves 1590 grs. of pure balsam operated upon; the amount of acid obtained was 88 grs., making a yield of about $5\frac{1}{2}$ per cent.

It agreed with the following reactions of cinnamic acid (see "*Gmelin's Hand-Book of Chemistry*"):

Heated on platinum foil, it first fuses and then takes fire, burning with a fuliginous flame, and evolving peculiar stifling and irritating fumes. Cold oil of vitriol colors it yellow, and then dissolves it with evolution of heat, forming a clear brownish liquid, which, on the addition of water, deposits a small quantity of a brownish-white powder (sulpho-cinnamic acid). Hypochlorite of calcium converts it first into oil of bitter almonds, with its characteristic odor, and then into benzoate of calcium. Sulphuric acid and bichromate of potassium also convert it into oil of bitter almonds and finally into benzoic acid, the same effect being produced by other oxidizing agents.

The resin remaining after the extraction of the cinnamic acid was treated with boiling petroleum benzin, the liquid decanted and allowed to cool, when a yellowish-white oily-looking mass was deposited. This was proven to be styracin, rendered amorphous by heat. The vessel containing it and the benzin was set aside in a moderately cool place, and allowed to stand for several weeks. On then examining it, the yellowish mass was found to have become crystalline, and quite a quantity of styracin in clusters of white acicular crystals had been deposited on the sides of the vessel above the surface of the benzin. The property of being rendered amorphous by heat and recrystallizing on standing, as well as the manner of crystallizing above the surface of the liquid, are mentioned by Gmelin as characteristic of styracin. The specimen under examination also afforded the following reactions of styracin:

Treated with nitric acid it is changed into a yellowish pulverulent substance, evolving at the same time the odor of oil of bitter almonds. With sulphuric acid and bichromate of potassium it also evolves the odor of oil of bitter almonds. Treated with sulphuric acid alone, either hot or cold, it is charred. It is completely insoluble in water, either hot or cold, soluble in alcohol, and more freely in ether. It does not combine with or dissolve in solution of lime, even at boiling heat, neither does it dissolve in solution of ammonia. Heated with potassium hydrate, it is converted into cinnamate of potassium, and a brown resinous-looking substance, with a pleasant odor, resembling that of cinnamon. It does not combine with acids, but is rendered more soluble by them, *e. g.*, the solution of one part styracin in eight of boiling alcohol becomes turbid on cooling, but is immediately rendered perfectly clear by the addition of a little sulphuric acid.

The volatile oil, styrol, obtained by distillation, seems identical with that from storax. It is a carbo-hydrogen, nearly colorless, of a peculiar aromatic odor resembling the balsam, and has a persistent, burning taste. It is slightly soluble in water, and imparts to it, in a marked degree, its peculiar odor; very soluble in alcohol, ether and the fixed oils. Sulphuric acid has no marked effect upon it. Treated with nitric acid it is converted into a reddish resinous-looking substance, evolving an odor almost identical with that of oil of turpentine.

The resin remaining after the cinnamic acid, styracin and styrol had been extracted, was of a dark brown color, nearly odorless and tasteless; entirely soluble in alcohol and ether and insoluble in bisulphide of carbon.

In the *American Journal of Pharmacy* for May, 1860, Mr. W. P. Creecy, of Mississippi, in an inaugural essay on this balsam, states that the acid obtained by sublimation gave no odor of oil of bitter almonds when treated with hypochlorite of calcium, and hence he concluded that it was benzoic acid. Not having been able to detect the presence of benzoic acid in the balsam, and doubting its existence, the above-mentioned experiment was repeated in this case, but with different results. A portion of the balsam was mixed with sand and carefully heated in Mohr's apparatus for benzoic acid. A sublimate was obtained, consisting of white acicular crystals, with a slight empyreumatic odor. A portion was treated with hypochlorite of calcium, and at once gave the decided and characteristic odor of oil of bitter almonds, thus proving that it was cinnamic and not benzoic acid, as averred by Mr. Creecy.

If benzoic acid exists in the balsam at all, it must be in very minute quantity, as all the methods applied failed to detect it.*

The use of petroleum benzin in obtaining cinnamic acid in a pure state (a suggestion of Prof. Maisch) was found highly preferable to alcohol, which is the solvent recommended by Gmelin and others. Benzin dissolves only the acid, and on cooling deposits it in a pure state, free of all traces of resin and coloring matter. Alcohol also dissolves the acid, but takes up along with it the adhering resin, rendering it difficult to purify. The acid is also more soluble in alcohol than in benzin, and hence the loss in the mother liquid is greater.

* See also Prof. Procter's paper in the *American Journal of Pharmacy*, 1866, p. 37.

The same advantages from the use of benzin will also be observed in extracting styracin.

The foregoing experiments serve to show the very close analogy between the balsam of *Liquidambar styraciflua* and that of *L. orientale.* In this case the balsam of the former was treated in the manner given by Gmelin in the examination of storax, and precisely the same result obtained, and in similar quantities. The balsam also somewhat resembles storax in its physical properties; the tree producing it belongs to the same natural order, and hence it is natural to conclude that by a proper treatment of the fresh bark, a product similar to, and answering all the purposes of, liquid storax, may be obtained.

ON THE BALSAMS OF *LIQUIDAMBAR STYRACIFLUA* AND *ORIENTALE.*

By John M. Maisch.

The experiments detailed in the essay of Mr. Harrison, and the interesting results obtained by him, leave no doubt of the identity of the balsamic exudations as obtained from the Asiatic and American species of the genus Liquidambar. The difference in their physical appearance is readily accounted for by the different methods employed in obtaining the storax of commerce, and the so-called sweet gum of our Southern States. While the latter, even after having become dark-colored by exposure, is perfectly transparent in thin layers, the former is of a peculiar grey color and opaque, until the water which it contains has been expelled by heat or allowed to settle by long standing, in which latter case the lower stratum will retain the opacity of the commercial article, while the superior stratum will have assumed the perfect transparency which the *natural* exudation of *L. orientale* undoubtedly possesses, though the color of the latter is likely to be and remain lighter than that of the clarified storax. If these premises are correct, it was to be expected that the introduction of water into the sweet gum should produce an opaque article, resembling storax in appearance. An experiment made by Mr. Harrison at the laboratory of the Philadelphia College of Pharmacy, proved the correctness of the inference stated; when sweet gum was heated in a water-bath, together with a small quantity of water, and frequently stirred, the balsam assumed a grey color, and remained opaque after cooling. I have no doubt that the resemblance to storax will be still greater if

the recent bark of *Liquidambar styraciflua* is properly comminuted and carefully steamed or digested in warm water and afterwards expressed.

Several other experiments made by Mr. Harrison deserve to be mentioned, as possessing considerable interest.

In 1871, while preparing the proximate principles of storax, I observed the solubility of styracin in petroleum benzin, and at the February (1872) meeting of the Philadelphia College of Pharmacy exhibited* some of the products obtained, among them styracin prepared by the processes of Simon and of Toel, which could not be obtained pure by crystallization from alcohol without sustaining great loss; also styracin which had been obtained from storax previously exhausted by carbonate of sodium, by treating the residue directly with hot petroleum benzin, which on cooling deposited it at once pure. It may be mentioned here that this storax residue was repeatedly treated in the same manner, when it was observed that the later deposits were amorphous, but became crystalline after some time, the interval becoming longer after each subsequent treatment, until finally a portion was obtained but slightly yellowish in color, rather soft and perfectly transparent; in this portion the change into the crystalline state did not commence until about two years after the experiment had been made, and even now, after a period of thirty-two months, has not been completed, notwithstanding the mass has been occasionally stirred. The statement of Toel that fused styracin which refuses to crystallize, congeals rapidly into stellately arranged needles, on being touched with a pointed instrument, must be modified with the proviso that the heat be not applied too long or too frequently after short intervals.

After Mr. Harrison had observed cinnamic acid to be readily soluble in hot petroleum benzin, he proved also, experimentally, that this acid and styracin are taken up together, from sweet gum as well as storax, by the menstruum mentioned, and crystallize together on cooling; the snow-white crystals yielded to dilute ammonia all the cinnamic acid, leaving the styracin behind, and the ammoniacal solution giving with muriatic or sulphuric acid a white precipitate of cinnamic acid. This appears to be by far the quickest way of obtaining perfectly pure cinnamic acid from storax, if the loss of styrol is of no consequence; and, in case styracin is not desired, the mixture of styracin

* See Amer. Journ. of Pharm., 1872, p. 134.

and cinnamic acid may be distilled with caustic soda solution, when styron (cinnamic alcohol) is found in the distillate, while the residuary alkaline liquid, on being supersaturated with muriatic acid, yields all the cinnamic acid.

Treatment of either of the two balsams with hot solution of sodium carbonate removes all cinnamic acid; the styracin obtained from the residue of sweet gum by petroleum benzin was found by Mr. Harrison not to contain any free cinnamic acid, and the styracin prepared by me from storax in 1871 was equally pure.

The so-called sweet gum is used medicinally in some sections of our Southern States, as it seems, principally as a stimulating expectorant. Mr. Oscar L. Smith, in a letter dated Savannah, Ga., Sept. 30, 1873, informed me that it is popular there with physicians, who employ it in the form of syrup or tincture; both preparations are made by the formulas of the U. S. P. for the corresponding preparations of tolu, and are used in about the same manner as the latter. Near Savannah the balsam is collected by negroes, but the supply is frequently inadequate for the demand.

CORTEX JUGLANDIS CINEREÆ.

By Edward Seymour Dawson, Jr., G. P.

Condensed from an inaugural essay.

The butternut tree is found throughout the New England, Middle and Western States, and Canada, growing in rich woods, on elevated river banks, and on cold uneven rocky soils. Early in the spring, immediately before the leaves unfold, a saccharine juice, which furnishes a good sugar, is obtained by tapping the tree. The wood of the tree is light, of a reddish hue, not apt to become worm-eaten, and is often used in paneling and ornamental work. The fruit, collected previous to its ripening, is used by many persons in the form of a pickle, and in Germany, as I have been informed, the fruit of *Juglans regia* is macerated in liquor with spices, and thus furnishes a sort of elixir which is used as a tonic in dyspepsia. The bark of the tree, and husks of the nuts, furnish a dye of a chocolate color for woolen goods. The bark and leaves of the tree are, practically, the only medicinal portions, but the former only is recognized by the U. S. Pharmacopœia, under the name of "*Juglans*," and it is directed that the inner bark of the root collected in May or June, should be used, but, from my observations, bark collected in July, is as efficacious as that col-

lected earlier. I would not recommend the use of bark that has been collected earlier than May, for I found that some collected in April yielded an extract which had a sweetish insipid taste, and was decidedly less strong than that made from bark collected later. The bark used for my analysis was obtained from the stem of the tree, and was collected during the month of July, 1873. It was from $\frac{3}{8}$ to $\frac{3}{4}$ of an inch thick, and consisted of a liber ranging from $\frac{1}{4}$ to $\frac{1}{2}$ inch in thickness, which was covered with a grayish-colored corky layer. The corky layer was marked with irregular longitudinal fissures, and penetrated very unevenly into the liber. When first taken from the tree the liber was *white*, but on exposure to the air, it first acquired a lemon-yellow, and ultimately a deep brown, almost black color. The odor was quite strong and peculiar, and the taste was bitter and very acrid. When the liber is chewed, it stains the saliva yellow, and leaves a brownish stain upon the tongue. Having freed the liber from the layer of cork, I carefully dried it, and, upon examining it, found that its inner surface was quite smooth, that its transverse fracture was somewhat fibrous, and that its longitudinal fracture was quite uneven. A cross section of the liber shows the bast fibres to be placed tangentially, and it has a checkered appearance, which is caused by the radial medullary rays crossing the tangential rows of bast fibres. In the fresh, undried bark, the fracture shows white edges, which quickly change color from lemon-yellow to brown, but in the dry bark the fractured edges do not change color, unless they be moistened with water. Unless the bark is dried immediately after being collected, it becomes of a deep brown color throughout, and loses its bitter, acrid taste, and acquires an insipid, resinous taste. Whether this change of color and taste affects the medicinal virtues of the bark, I cannot say, but I would recommend that the bark be dried at once after collection. While trimming the bark, my hands were stained a decided brown color, which I found very difficult to remove. Butternut bark possesses mild cathartic properties, and has acquired considerable reputation in bowel affections, particularly in cases of dysentery. It is given in the form of decoction or extract, never in substance. An extract of the bark is officinal in our Pharmacopœia under the name of extractum juglandis, and when given in doses of grs. v—x, acts as a laxative, and in doses of grs. xx—xxx, as a purge. Under the name of juglandin, there appears in commerce an eclectic resinoid, which is obtained by exhausting the offici-

nal bark with alcohol (sp. gr. ·835), mixing the resulting tincture with half its bulk of water, distilling off the alcohol, and then removing the resin, which is suspended in the aqueous residue, and washing and drying it. This resin, in doses of grs. 2—5, is said to act as a diuretic and cathartic, but that which I obtained, when taken in 5 grain doses, had more of a diuretic effect than cathartic, and I do not think that any decided medicinal virtues can be attached to it. Butternut bark has for a long time been used in domestic practice, and by that means, probably, became known to our medical profession, with whom, at one time, it enjoyed considerable reputation, but has now become almost obsolete with our city physicians, although it is still used to quite an extent by country practitioners. I have found that a tincture of the bark, of such a strength, that fl. ℥ xvi of it will represent two troy ounces of the powdered drug, (the menstruum being diluted alcohol), forms a handsome, permanent preparation, and when given in doses of fl. ʒi—ij, acts most decidedly as a cathartic. A fluid extract made according to the Pharmacopœia formula for extract. cinchonæ fl., forms a preparation which fully represents the odor, taste, and medical properties of the bark.

Mr. C. O. Thiebaud, in 1872,* made a very interesting investigation of the constituents of butternut bark, and found, among others, a volatile acid: juglandic acid, which he considered allied to chrysophanic acid, and also an acid crystallizing in flat tabular crystals. The solvent used by him in isolating the above constituents, was true benzole. In prosecuting my analysis of the bark, I followed, to a certain extent, the course adopted by Mr. T., substituting, however, petroleum benzin for a solvent in place of benzole, but the results of my investigation do not entirely correspond with his.

In the cold infusion, which had an acrid taste, the author found neither albumen or alkaloid; to the incompatibles mentioned by Mr. Thiebaud (loc. cit. p. 255), Mr. Dawson adds potassium ferrocyanide, mercuric chloride and tartar emetic; gelatin likewise produced a precipitate, and tannin appears therefore to be present.†

* American Journal of Pharmacy, 1872, p, 253.

† The discrepancy between the statement of Mr. Dawson and Mr. Thiebaud may perhaps be explained by the bark used by the former having been carefully and rapidly dried immediately after collection; it is not unlikely that thereby the decomposition of the tannin may be partly prevented.—Editor Amer. Journ. Ph.

Trommer's test indicated sugar in the infusion, which had dissolved about one-sixth of the total weight of the bark, and separated on standing and evaporation, some greenish resinous matter. The bark exhausted by cold water, yielded starch to boiling water.

The decoction of the bark resembles the infusion, but is destitute of its acrid taste. The precipitate with acetate of lead, when decomposed by H_2S, evaporated and exhausted by alcohol, furnished on evaporation an amorphous black residue, which was precipitated by gelatin, ferric chloride and tartar emetic, and therefore contains some tannin. The filtrate from the lead precipitate contained principally sugar.

The bark (℥j), which had been exhausted with hot water in preparing the decoction, was thoroughly dried, and then macerated in petroleum benzin, in a warm place for several days, whereby a yellow liquid was obtained, which, on evaporation, yielded a rather thick oily residue. This residue, when entirely free from benzin, was found to weigh grams 4·58, which shows for the bark a yield of a trifle over 14 per cent. of fixed oil. It has a dark red color, slight odor, and a peculiar, slightly pungent taste. At 60° F., it is quite fluid, but between 40° and 50° F., becomes partly solid, owing to the separation of a crystalline body, which is probably stearin. At 20° F., it solidifies into an opaque crystalline mass. Its specific gravity, obtained by means of a buckshot, is 0·9 at 55° F. The oil is sparingly soluble in 85 per cent. alcohol, almost entirely soluble in absolute alcohol, and freely soluble in ether, chloroform and benzole. It is readily saponified by KHO, and, when heated with the latter, yields a clear violet-colored solution, which, when diluted with water and treated with NaCl, yields a brownish soap that separates and rises to the surface.

Resin.—The troy ounce of bark, exhausted with hot water and benzin, was thoroughly dried and then macerated in 85 per cent. alcohol for 7 days. The tincture thus formed was mixed with half its bulk of water and subjected to distillation, till the alcohol was mostly removed. From the liquid remaining in the retort, about grams 0·2 of a greenish-brown resin was obtained, which weight does not appear to represent the whole amount of the resin.

It is entirely soluble in liquor potassæ, forming a deep violet-colored solution, from which it is precipitated by acetic acid provided the solution is concentrated, but if the latter is diluted it is not af-

fected by that acid. It is completely precipitated from either strong or diluted solutions by hydrochloric acid.

It seems to be slightly soluble in water, is sparingly soluble in chloroform, and insoluble in benzin. Ether dissolves about 50 per cent. of it. It fuses at 170° F. When heated on platinum foil it first fuses, and then takes fire, burning with a smoky, luminous flame.

Volatile Oil.—A portion of the bark was placed in a retort, mixed with a little more than enough water to cover it and subjected to distillation, whereby a yellowish distillate was obtained, which had a slight acid reaction, and a strong, peculiar, aromatic odor. From this, by cohobation, I finally obtained a colorless liquid, on the surface of which minute globules of oil could be seen floating. The odor of the volatile oil is peculiar, and not very pleasant. The yield was so very small that I could not determine anything in regard to it.

Volatile Acid.—About one troy ounce of the bark was treated as in the former experiment, and subjected to distillation. Before the contents of the retort had begun to boil, I obtained about half a fluid ounce of a bright yellow distillate, which was odorless; this I separated and set aside, and then continued the distillation till about six fluid ounces of a nearly colorless distillate had been obtained. The distillate first obtained was agitated with ether, till the latter ceased to be colored, and the ethereal solution was drawn off. This had a bright yellow color, and, on evaporating the ether, yielded an orange-yellow residue in which were numerous long acicular crystals, which had an acid reaction, and a hot, acrid taste. When treated with liquor potassæ, the crystals acquired a deep-violet color. This volatile acid probably constitutes the acrid principle of the bark, therefore we can readily understand why a long-boiled decoction of the bark is devoid of an acrid taste. The second portion of the distillate was not acid in reaction, and was not subjected to further investigation. It would almost seem as if this volatile acid was decomposed at the boiling point of the decoction, inasmuch as the condensed vapor of the liquid in the retort ceased to have a yellow color the moment the latter began to boil, and, also, ceased to have an acid reaction.

A fresh portion of bark, when treated with petroleum benzin, yielded an oily extract, from which neither alcohol or diluted alcohol would separate any crystalline principle. The extract, distilled with water, yielded a light yellow distillate, from which ether took up an oily matter which was not colored purple by alkalies. But the water-

in the retort was deep red, and ether dissolved from it an olive-brown amorphous mass, becoming violet by alkalies. No better results were obtained on saponifying the oil with potassa, removing the soap by salt, acidulating with acetic acid and treating with ether; the residue was acrid, amorphous, of an acid reaction, colored violet by alkalies and stained the hands.

Commercial benzole was not employed by the author, because he observed it to leave a crystalline residue on spontaneous evaporation.

Air-dry bark yielded 5·3 per cent. of ashes, containing aluminium, magnesium, calcium, potassium and sodium, combined with carbonic, sulphuric, hydrochloric, phosphoric and silicic acids.

Note by the Editor.—The results obtained by Messrs. Thiebaud and Dawson leave no doubt that the juglandic acid of the former is identical with the *nucin* of A. Vogel, Jun., and Reischauer (see Gmelin's Chemistry, Cav. edit., vol. xvii, p 20), obtained from green walnut peel, and which is very readily altered in the presence of that principle, which in contact with the air, rapidly becomes brown-black, and which J. A. Buchner* named juglandic acid, but he did not succeed in isolating it. Nucin being sublimable at a temperature exceeding 80° C. (176° F.), its appearance in the watery distillate from the bark is easily accounted for, so that the volatile acid of Dawson and Thiebaud must be identical with the juglandic acid of the latter, as proven by the former by the behavior to alkalies. According to Reischauer and Vogel, subacetate of lead and alkaline borates and phosphates impart to nucin a beautiful purple red color, the same as caustic alkalies.

ON THE LOSS OF WEIGHT BY THE DRYING OF AIR-DRY DRUGS.

By George W. Kennedy, G. P.

In the April number of the "Journal" of 1872, page 156, will be found an article by the writer on the amount of moisture contained in air-dry drugs. The experiments were made during the months of January and February, and only show the loss and re-absorption for those two months.

*Buchner's Repertorium, 1843; lxxix, 355.

That examination is inadequate as a guide for the year, as some months are wet and others more dry, necessarily causing the drug to vary in the amount of moisture it contains.

Prof. Maisch suggested to me the importance of making a series of experiments with a number of drugs in each month during the year, for the purpose of ascertaining how much they would vary during wet and dry weather,* and thus to determine the importance of using only drugs that are thoroughly dried in the manufacture of the many galenical preparations, and especially tinctures, syrups and fluid extracts and the like, which must vary in strengtn as made from anhydrous or merely air-dry drugs. give below the results of my experiments, commencing with January, and continuing during the year till December, 1873.

The operation was conducted in the following manner: The drug was weighed from the stock on hand about the first of each month, and then exposed to a heat of about 110° Fahrenheit in a common cooking stove oven until it ceased losing weight. The loss was noted, and the material was then exposed to the atmosphere until the end of the month, when it was re-weighed in order to find out how much moisture had been re-absorbed during the month. It will be found upon examination that the quantity of moisture lost and re-absorbed varies considerably, owing to the condition of the weather at the time when the drug was weighed; for instance, supposing at the first of the month the article was weighed in dry weather, the loss in moisture was invariably smaller than if it were weighed in rainy weather; then again at the end of the month, when the drug was re-weighed in wet weather, the amount of moisture re-absorbed was always larger.

The figures presented by the writer are as correct as they possibly can be, care having been taken to avoid the loss of material on the

* Our suggestion was not, to exsiccate the drugs every month for the purpose of ascertaining the percentage of moisture contained in them, but to make that determination once only, at the beginning of the year, and to reserve another portion of the same drug for the purpose of weighing it once or twice a month, in order to determine the *variation of the actual weight* of the drugs kept in the usual mannei throughout the year. It is obvious that the *relative* strength of the galenical preparations of air-dry drugs would be the same, if the actual weight of these drugs did *not* differ throughout the year, in wet or dry weather, &c.; while in *actual* medicinal strength they are undoubtedly weaker than if they had been made from anhydrous drugs.—Editor Amer. Journ. Ph.

one hand, and excessive contamination with dust on the other hand. Sometimes two or three experiments in drying, &c., were made in order to satisfy myself that the results were correct.

In the following tables the I column for each month indicates the actual weight obtained from 100 parts of the drugs after drying as indicated above; the II column shows the actual weight of the same material at the end of the month; the difference between these and the first figures indicating the amount of moisture re-absorbed during the month. The remarks, Dry, Wet, &c., at the head of each column, describe the weather on the day the weight was taken:

DRUGS.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE	
	I.	II.	I.	II.	I.	II.	I.	II.	I.	II.	I.	II.
	Dry.	Dry.	Dry.	Wet.	Damp	Dry.	Showery.	Dry.	Dry.	Dry.	Dry.	Wet,
1. *Roots and Rhizomes.*												
Colchicum......	88 80	97·15	88 20	96·60	88·00	96·00	88·20	96·00	88·90	96·80	88·60	98·50
Gentiana.........	89·00	97·50	89 60	98 25	88·90	97·15	89·10	96·77	89 50	97·10	89 20	98·00
Lappa............	88·00	96·80	88·00	97·10	87·40	95·80	88·00	96·20	88·20	96·60	88 00	97·00
Podophyllum ..	88·80	97·05	88·90	97·30	87·80	96·70	88·25	96 05	88·80	96 60	88·50	97·10
Rheum	89 20	97·45	89·00	96·50	87·90	97·10	88·20	96·80	89·15	96 40	89 75	97·85
Senega	89·55	97·45	88 80	97·30	88·10	96·85	89·10	96·00	89·75	97·25	89 65	98 45
Serpentaria	88·75	97·00	88·40	97·35	87·00	96·10	87·90	96·15	88·75	96·90	88·00	97·00
Taraxacum	88·00	96·33	88 00	97·80	86·00	95 00	86·40	95·15	87·00	95·40	86·80	96·55
Valeriana........	89·10	97·10	88·75	97·85	87·90	96·00	88·80	96·36	89·00	96·20	88·50	97·00
2. *Barks.*												
Cinchona rubra	89 80	97 30	89 30	97·70	88 10	96·00	88·80	95·20	89·00	95·00	89·00	96·90
Cinnamomum..	89·10	96 98	89·00	97·75	88·00	96·10	88·50	96·50	88·90	96 00	88·80	97·30
Prunus Virgin.	89·67	97·57	89·60	98·00	88·50	96·70	89·25	96·65	89 20	96 70	89·70	97·70
Sassafras	89·25	97·35	89 00	97·90	87·20	95·00	89·10	96·45	89·00	94·20	89·00	97·20
3. *Leaves.*												
Aconitum.......	87·00	95·25	88·00	97·00	86·50	95·00	87·00	95·10	88 00	96·00	87·80	96·70
Belladonna.	86·25	95·25	87 50	96·75	85·60	94·70	87·00	95·20	88·50	96·60	89 00	97·95
Buchu.	88·75	96·45	89·00	97·50	87·80	96·30	89·00	96·20	89·25	96·15	89 00	97·75
Digitalis	88·00	96·00	88·75	97·75	86 00	95·00	87·50	95·50	88·50	95·50	88 00	97·00
Hyoscyamus....	88·00	96·20	88·00	97·10	87·20	95 95	88·10	96·30	88 25	96 25	88·20	97·20
Senna Alex.....	88·20	96 00	88 25	96·65	86·80	94·40	89·00	96·80	89·00	96·25	89 75	97·95
Uva ursi.........	89·67	97·07	89·00	97·90	88·80	97·00	89·25	96 85	89·20	96·60	89·60	98·35
4. *Flowers.*												
Anthemis..... ..	90 00	97·10	89·00	97·65	88·40	96·80	89·25	96·95	89·80	97·10	89 75	97·85
Arnica	89·75	97·25	89·20	97·30	88·70	96·37	89·00	96·50	90·00	97·50	89·75	97·70
5. *Seeds.*												
Colchicum......	89·75	97·75	90·00	98·00	88·20	96·20	88·80	96·20	89·00	96·25	89·20	97·30
Stramonium....	91.40	98 40	90 00	97·00	89·80	96·70	89·90	96·45	90·00	96·00	90·00	98·00

DRUGS.	July.		August.		September.		October.		November.		December.	
	I.	II.	I.	II.	I.	II.	I.	II.	I.	II.	I.	II.
	Dry.	Very wet.	Wet.	Wet.	Dry.	Dry.	Damp	Wet.	Dry.	Dry.	Dry.	Wet.
1. *Roots and Rhizomes*												
Colchicum......	88·80	98 80	87·70	98 25	88·20	97·20	88·00	97·75	88·25	96·35	88·70	98 30
Gentiana.........	89 20	98 00	87·90	97·50	89·20	98 00	88·25	99·45	89 60	97 45	89·60	98·00
Lappa............	88 20	98·20	87 00	98·00	88·35	97·15	87·80	97·90	88 25	95·85	88 80	98·45
Podophyllum...	88·10	97·70	87·25	98·00	88·75	97·65	88·15	97·50	88 75	96·25	88·90	98·00
Rheum	89·60	98·30	87·20	96 95	88·75	96·75	88·20	97·70	89 10	97·00	89·75	98·75
Senega...........	89·25	98·65	88·20	98·40	88·90	97·30	88·20	97·60	88·90	96·20	89·10	98·60
Serpentaria.....	88 80	97·90	86·75	97·00	88·20	96·45	88·00	97·10	88 75	96 65	88·85	98·60
Taraxacum......	86·90	96·90	84·40	95·90	86 50	95·60	84·75	93 75	87·10	95·50	86 80	97 90
Valeriana.......	89 00	97·65	87·80	97·80	88·50	96·70	88·10	97·60	89 00	97 05	88 90	98·40
2. *Barks.*												
Cinchona rubra	89 75	97·60	87 80	96·90	88·90	96·70	88·50	97·25	89 00	94·40	89·20	97·20
Cinnamomum..	88 80	97·55	88·25	98·00	89·00	97·20	87·90	97·90	88·80	96·40	88·90	98·70
Prunus Virgin.	89·25	97·25	89·00	98·70	89·50	97·90	88·00	97 25	89·00	96·50	89·15	98·65
Sassafras.........	88·90	97·50	87·90	98·00	88·80	96 95	87·75	97·35	88 90	96·00	89 00	98·15
3. *Leaves*												
Aconitum.......	88·20	98·20	87·00	97·75	88·10	97·30	87·50	97·50	88 00	96·15	88·50	98 50
Belladonna	88 75	98 55	86 25	96·75	88·75	97·80	87·20	97·70	87·90	96·15	88·40	98 60
Buchu............	89·30	98·20	87 90	97·40	88 90	97·65	88·10	97·00	89·00	97 00	89 00	98·70
Digitalis	88·25	97·75	86·75	97·75	88·00	97·00	87·00	97·20	88 00	96·10	89·00	98·50
Hyoscyamus....	88·25	98·00	87·00	97 25	88·00	96·90	87·60	97·20	88·00	96·25	88·20	98·00
Senna Alex.....	90·00	98·00	87·00	97·20	89·00	96·85	88·20	97·20	88·40	96·30	89·00	98·75
Uva ursi........	89·60	98·10	88·00	97·20	89·10	97·35	88 50	97·00	88 75	96·15	88·80	97 20
4. *Flowers.*												
Anthemis........	89·67	97 67	88·75	97.75	89·75	97·65	89·00	97·25	89·00	96·20	89·25	98·25
Arnica...........	89·40	98·15	88·65	97·75	89·35	96·50	88·50	97 70	88·90	96 40	89·40	98·50
5. *Seeds.*												
Colchicum	89·90	98·00	88 50	97·00	89·50	97·60	88·80	96·90	89·50	96·65	90·00	98·20
Stramonium.....	89 80	98·20	89·65	97·40	90·00	98 00	89·60	97·80	90 10	97 20	90·20	98·20

EXTEMPORANEOUS PHARMACY.

By Willard M. Rice, Jr.

It is my purpose, in this article, to speak of the great importance to pharmacists of a thorough knowledge of this branch of our profession, and also to mention some of the abuses into which it has fallen. If, as a result of my labors, any one, student or preceptor, shall be induced to pay greater attention to this subject, I shall be amply repaid.

One would suppose, if he were unacquainted with the facts of the case, that *this* branch of our profession, at least, would be thoroughly mastered by every one engaged in the dispensing and compounding of drugs and medicines. But if such a person were to take the

trouble to inquire into the matter, what a lamentable state of affairs would be brought to light! I do not wish to be understood as depreciating or underrating the standard of knowledge and ability possessed by our druggists as a class,—far from it—but it is a fact well known to every thoughtful mind, that there are a great many persons in the ranks of our profession who are terribly deficient in this most important branch. And this is the more inexcusable when Colleges and Text books are so plenty and good, offering to all who choose to avail themselves of their privileges the advantages of a good sound pharmaceutical education.

Nor are druggists the only ones to blame in this matter. The prescription files of any of our retail drug stores will show orders, some of them written by men standing high in their profession—bright and shining lights of the medical firmament—calling for the administration of drugs not only *chemically*, but often *pharmaceutically* incompatible. But it is to the case of the druggist that I wish to call attention more particularly at this time. It oftentimes happens that the exhibition of two or more articles in combination depends mainly, and even entirely, for its success upon the skilful manner in which the prescription is compounded. In such a case how important it is to know just "what to do," and "how to do it!" The health, and oftentimes the life itself of the patient may be in our hands, and woe be unto us if we prove recreant to the great trust reposed in us! What a cause of poignant grief and self-recrimination it would be to know that our criminal neglect of the means of knowledge within our reach has been the means of hurrying some soul, perhaps unprepared, into the presence of its maker and its judge.

But it falls to our lot not only to compound and dispense correctly and knowingly, but it is also laid upon us to correct the oftrepeated mistakes of prescribers. This is a matter of much delicacy, and requiring a great deal of individual *tact*, as no set of rules can be laid down to guide us in these cases. We are sometimes startled by having handed to us a prescription calling for a large quantity of some poisonous alkaloid, for example, and unaccompanied by any directions for use, (a neglect, by the way, of what is evidently *right* and *duty* in most cases at least, that is strangely prevalent at present). In this case we are compelled either by adroit questioning to get some idea of the manner in which the medicine is

to be used from the person bringing the prescription, without at the same time exciting his or her suspicions on the subject, or else, pleading necessary delay, we have to consult the physician himself. In this latter case how often are we treated as if it were a criminal act to be careful and particular in dispensing deadly articles.

Again, a prescription may be handed to us with the remark, "please hurry, as the doctor is waiting to administer the first dose himself." Upon looking at the manuscript we find that it has evidently been hastily scrawled with lead pencil, probably at the bedside of the patient, and only by much study, and some "guesswork," are we able to make it out. I venture to say that all of my professional brethren have gone through this experience.

But examples such as these might be multiplied to an almost indefinite extent—let these suffice. It remains for us to consider the remedy or remedies for this state of affairs. This I leave to older and more experienced heads than mine, only hoping that my humble endeavor may have the effect of calling attention to the great need of practical instruction in extemporaneous pharmacy in our pharmaceutical schools and colleges, and also in the store. There are some proprietors who insist on making all their preparations *themselves*, and even boast of so doing, thus giving their students no means of acquiring *practically* a knowledge of the daily routine of the laboratory. How these parties can expect to train up thorough pharmacists is more than the writer of this can understand.

Nor is this all that is needed. Who doubts that if a course of practical pharmacy formed a part of the curriculum of our medical schools there would be fewer deaths from "mistakes" to record.

And may we all, physicians and druggists, remember that we shall be called upon hereafter to account for "the deeds done in the body," and may we realize that it is our bounden duty to make the most of our advantages, and to acquire as thorough a knowledge as possible of our avocations.

Philadelphia, March, 1874.

DISINFECTANTS, ANTISEPTICS AND DEODORIZERS.

By Adolph W. Miller, M. D., Ph. D.

Read at the Pharmaceutical Meeting March 17th.

The above terms appear to be regarded by many as being almost synonymous in their meaning, and consequently they are freely in-

terchanged. Inasmuch as each of them indicates a different action and applies to a special class of substances, it may further scientific accuracy to define the peculiar signification of these words with greater precision.

A deodorizer, deodorant or antibromic is evidently a body which has the property of destroying offensive odors, whether it be by chemical action or by merely absorbing fetid gases.

An antiseptic is a body which prevents or checks putrefaction.

The word disinfectant, the most popular term of the three, applies literally only to those agents which are capable of neutralizing morbific effluvia. Dr. Henry Hartshorne tersely defines that substance to be a disinfectant, which destroys either a noxious material itself, or the pabulum upon which it subsists. As it is, however, still an open question, whether we possess any chemicals which have the power of destroying disease germs, at least in that state of dilution in which it is practicable to employ them, the term disinfectant is frequently used in a somewhat more liberal sense. Thus, Dunglison includes under it also antiseptics, or agents that are capable of removing any incipient or fully formed septic condition of the living body. We regret to observe that even in the revised and recently published edition of this standard work, no alteration has been made in this definition, which we conceive to embrace entirely too much latitude of meaning.

Dr. Squibb has proposed the new word *azymotic*, contracted from the French *antizymotique*, in order to express the peculiar effect of carbolic and cresylic acids on those low organic forms, whose life is intimately connected with fermentation. The difference in meaning between azymotic and antiseptic is clearly shown by their etymology —the one expressing the absence of fermentation, the other the prevention of putrefaction. The new term seems to be a fortunate one, although it would have been better not to have altered the prefix of the French word, since in its present form it indicates only negation, while *anti* distinctly defines opposition. We may note, in passing, that the flexibility and abundant resources of the German language have been amply sufficient to express the precise meaning of antizymotic by the term *gährungswidrig*, without the necessity of borrowing from a foreign idiom.

Charcoal and dry earth may be given as examples of simple deodorizers; they are disinfectants only in so far that they prevent the

escape of morbid particles when they mechanically enclose them. They have neither antiseptic nor azymotic properties, since, according to Crace Calvert's experiments, charcoal positively favors putrefaction and the production of vibriones.

Glycerin and chloride of sodium may be considered as antiseptics, both being practically used for preserving meat and other animal substances. Neither of them possess a notable influence on the production or destruction of disease germs, so that they are not true disinfectants—at least not in the restricted signification of the word—nor can either of them be ranked as a deodorizer.

Cresylic and carbolic acids may possess disinfectant, antiseptic and azymotic properties to an eminent degree; but they are certainly not deodorizers, though they frequently disguise or mask an unpleasant odor by their own inherent abominable stench.

Superheated steam, or an elevated dry temperature, is perhaps the most reliable disinfectant that we possess. Both are also azymotic, as they destroy the vitality of the organic forms on which fermentation depends; but they have only a very slight antiseptic effect, unless the amount of moisture, which is requisite for putrefaction, is withdrawn from the tissues by continued exsiccation. Neither dry nor moist heat can be regarded as deodorizers, as they have no influence towards fixing or decomposing offensive gases.

We see thus that the bodies, which are usually collectively called disinfectants, may possess but a single one of the four qualities enumerated above; more frequently they have two of them and sometimes three, but rarely, if ever, the entire four.

A highly interesting series of experiments, made by F. Crace Calvert, tends to elucidate this point still more clearly. As his valuable papers have a direct bearing on this subject, it may prove profitable to present a condensed abstract of them.

The experiments were conducted in small glass tubes, which had been carefully cleaned and heated to redness. 26 grams of a mixture, consisting of 4 parts of water to 1 of egg albumen, were introduced into each of them. 26 milligrams of the substances experimented with were subsequently added, being equivalent to 0·001. Immediately after the mixing a drop of the liquid was examined under a microscope with a power of 800 diameters; this was repeated daily for the succeeding 39 days, and occasionally for the following 80 days.

The results arrived at may be summarized as follows: Only carbolic and cresylic acids prevented the formation of both mould and vibriones. The chlorides of zinc and mercury, and sulpho-carbolate of zinc, prevented the generation of protoplasmic life, but not of mould. Lime, sulphate of quinia, pepper and hydrocyanic acid admitted of the production of vibriones, but not of mould. A fourth class of bodies had no antagonistic effect on either of them, comprising sulphurous, sulphuric, nitric, arsenious and acetic acids, caustic soda, potassa and ammonia, the chlorides of sodium, calcium and aluminium, hypochlorite of calcium, chlorate of potassium, the sulphates of calcium and iron, bisulphate of calcium, hyposulphite of calcium, the phosphates of sodium and calcium, permanganate of potassium, the sulpho-carbolates of potassium and sodium, picric acid, turpentine and charcoal.

Hypochlorite of calcium acted as an antiseptic only when used in large excess, by decomposing organic compounds with the evolution of nitrogen. The assumption that chlorinated lime renders organic substances incapable of putrefaction, is consequently fallacious. On the contrary, when used in small proportion, like other agents which favor oxidation, it actually promotes decay and the generation of infusorial life; but when about four per cent is added, it checks the development of animalcules in organic solutions, and also destroys the vitality of vaccine lymph.

Special attention is also called to the action of the sulphate of quinia, which, while not interfering with vibrio life, completely arrests the growth of fungi. As quinia is as near a specific for intermittent fever as any that we possess, it seems probable that this disease is caused by the introduction of the germs of low vegetable forms into the system. The prevalence of intermittent fever in marshy districts, contrasted with its rarity in high and dry regions, seems to be another argument to strengthen this theory.

In a second series of experiments, Dr. Crace Calvert employed solutions of albumen in which organisms had already been formed, to which he added one per cent. of the various substances. Cresylic acid completely destroyed the vibriones and prevented their reappearance during the entire continuation of the trial. Carbolic acid, sulphate of quinia, chloride of zinc and sulphuric acid killed almost all the vibriones, though a few were observed towards the end of the experiment. Sulpho carbolate of zinc and picric acid were likewise fatal to almost

all the vibriones, but did not seem to interfere with their reproduction, although after sixteen days the solution contained only about half as many as a simple one, which had been reserved for comparison. Chloride of aluminium, sulphurous and hydrocyanic acids behaved in the same manner, but after sixteen days the solutions contained quite as many vibriones as the simple trial mixture. Hypochlorite of calcium, chloride of mercury, chlorine water, caustic soda, acetic acid, nitric acid, sulphate of iron and sulpho-carbolate of sodium at first destroyed a large proportion of the vibriones, but afterwards seemed to favor their regeneration to such an extent that these solutions finally contained more vibriones than the trial mixture. Arsenious acid, the chlorides of sodium, calcium and potassium, sulphate of calcium, turpentine and pepper exerted no effect on these organisms, neither at the beginning nor after the sixteen days, during which the studies were prosecuted. Lime, charcoal, permanganate of potassium, phosphate of sodium and caustic ammonia favored the production of both vibriones and moulds.

We may next examine the peculiar manner in which disinfectants accomplish their results. We find that their different modes of action may be grouped together under five different classes, as described in the following table, which has been compiled by Dr. Henry Hartshorne:—

1st. By the absorption of gases and by preventing their emanations, as dry earth, lime and charcoal.

2d. By neutralizing and fixing sulph-hydric acid, as nitrate of lead.

3d. By antiseptic action, that is, by arresting putrefactive changes in organic matter, as sulphurous acid.

4th. By decomposing sulph-hydric acid and organic matter, as chlorine.

5th. By destroying organic disease germs or morbid poisons of infection and contagion.

Substances possessing the properties of the first two classes should be called deodorizers, while those embraced in the fifth class have a just claim to be considered as disinfectants. The agents included in the fourth class act as deodorizers, but may also become true disinfectants if used in sufficiently large proportion.

It seems to be a curious fact that the oxidation of perfumes and volatile oils is generally accompanied by an active ozonization of the atmosphere. Prof. Paolo Mantegazza, of Pavia, who has carefully

investigated this subject, says that it is a very convenient method of obtaining ozone, as, under the influence of solar light, the essential oils will ozonize comparatively large proportions of atmospheric oxygen. This statement seems to furnish a true basis for the reputation which odorous herbs and other perfumes have borne as purifiers of the atmosphere since ancient times. The fumigation with aromatic gums, which are so liberally indulged in by the Latin church, may therefore have a sanitary value in addition to the gratification of the olfactory sense by the diffusion of their rich-smelling odor throughout the edifice. Dr. Dougall found benzoic acid, which is so large a constituent of these gums, to be a more powerful antiseptic than any other organic acid.

The confusion of terms relating to this subject is not by any means confined to this country. Thus we find in the German periodicals an article on chlorinated lime as a disinfectant, by A. Eckstein, an apothecary of Vienna. The only test which he applied for the purpose of ascertaining the *disinfecting* properties of chlorinated lime and other chemicals, was the impression produced upon his own olfactory organs. The paper has consequently a practical, if not a scientific value, as we are all personally interested in the abatement of nuisances and the removal of nauseous effluvia to which we are compelled to expose ourselves daily.

Eckstein states that the results of his experiments have convinced him that chlorinated lime is the most useful agent for deodorizing cesspools, privy wells and excrementitious matter in general. The rapidity and energy of its decomposition has so far proved to be an obstacle to its regular employment, as the eliminated chlorine vapors seriously incommode the respiratory organs of those who frequent the localities where it has been applied. In order to overcome this objection, Eckstein conceived the idea of employing a cover of a material which is but slowly acted on by lime, but which, by its osmotic qualities, mitigates the inhalation of chlorine vapors to such an extent that they do not annoy the respiration of even the most sensitive. He found a bag made of parchment paper to fulfil these indications in the most convenient manner. When such a bag is thrown into a well it remains in the spot where it has been deposited, as it is too heavy to be washed away by the drainings. As it is constantly surrounded by liquids, it has a local action, which seems to consume the chlorine in about the same ratio in which it escapes.

Eckstein experimented for two years with the privy of his house in Vienna, which was frequented by at least one hundred persons daily. He successively tried a great number of chemicals in various methods, with the following results :

1st. When an aqueous solution of two pounds of iron sulphate was poured into the well, the odor of sulph-hydric acid was eliminated for several hours. After this time all unpleasant odor had disappeared, but within twelve hours the effect of the deodorizer was no longer perceptible.

2d. A solution of sulphate of copper behaved in the same manner.

3d. Two pounds of iron sulphate in crystals exerted a deodorizing effect for two entire days ; the same amount of copper sulphate in crystals gave analogous results.

4th. Two pounds of disinfecting powder, composed of a mixture of iron and copper sulphates with carbolated lime, acted for only two days.

5th. Sulphurous acid, in a liquid form, was found to be rapidly effective, but it proved to be very troublesome to the organs of respiration for an hour, and it was dissipated within twenty-four hours.

6th. One ounce of red carbolic acid disseminated a very unpleasant tarry odor throughout the entire house for two days ; so that its true effects could not be estimated, as one fetid odor was concealed by a still worse one.

7th. Two pounds of iron sulphate in crystals were introduced into a parchment bag and put into the cesspool. No result was observed until after two hours, and but little sulph-hydric acid was eliminated. The place was thoroughly deodorized for three full days. When the parchment bag was removed it contained only a turbid, but almost inodorous, liquid.

8th. Two pounds of commercial chlorinated lime, of high test, enclosed in a parchment bag, began to deodorize within two hours after being deposited. It did not in any manner inconvenience either the respiratory or the olfactory organs, while its action extended over a period of quite nine days.

9th. Two ounces of crude permanganate of sodium, used by itself in solution, deodorized almost instantly, but all traces of its effects had vanished after twenty-four hours. The same preparation, when enclosed in a parchment bag, was active for two days.

The above data seem to demonstrate conclusively that chlorinated

lime, enclosed in a bag of parchment paper, deodorizes not only in the most effectual manner, but also for the longest period of time. This statement is confirmed by the results of numerous similar investigations which have been recently instituted in the Official Chemical Laboratory for Public Hygiene of Dresden, in Germany. Many of the so-called disinfectants were carefully studied in relation to their effects in deodorizing the liquid of manure heaps. Chlorinated lime, in conjunction with sulphuric acid, was found to be the most powerful, so that the value of this was taken as the standard, being numerically expressed by 100. The results were tabulated as follows:

Chlorinated lime with sulphuric acid,	= 100
Two parts chlorinated lime with seven parts iron sulphate,	= 99
Calcium sulphate with seven parts iron sulphate,	= 92
Carbolic disinfecting powder,	= 85·6
Slacked lime,	= 84·6
Alum,	= 80·4
Iron sulphate,	= 76·7
Chloralum,	= 74
Magnesium sulphate,	= 57·1
Potassium permanganate with sulphuric acid,	= 51·3

The report takes special occasion to caution the public against the purchase of the English chloralum preparations, on account of the disproportion existing between their actual value and the price demanded for them. According to the analyses of Alex. Müller chloralum consists of 16 aluminium chloride, 1·7 calcium chloride, 0·1 alkaline sulphates, 1·2 hydrochloric acid and 80·9 water. Chloralum powder contained 13·4 of aluminium chloride, 4·1 of aluminium sulphate, 9·1 calcium sulphate, 14·1 sodium sulphate, 15·5 of alumina soluble in hydrochloric acid, 13·5 kaolin, 9·4 silicic acid and 20·9 water. Müller considers it probable that both articles are obtained as by-products in the manufacture of soda.

ON THE RECTIFICATION OF ALCOHOL BY MEANS OF LIME.

By Charles Bullock.

The process usually employed to obtain absolute alcohol, is distillation of the spirit from quick lime.

The practical result of the process will appear from the following operation.

Fifteen gallons of alcohol, sp. gr. ·82361 at 60° F. = 93 per cent. was poured upon seventy pounds of well-burned lime, (previously broken into small pieces), in a still, heated by a steam jacket. The still was then made tight, and heated to about 120°; after standing three days, a worm was attached and distillation commenced, protecting the distillate from the air. Each gallon was collected in a separate vessel, the heat being gradually increased as was necessary to cause the alcohol to pass over slowly.

Ten gallons was all that could be made to pass over by steam heat. Water was then added to the lime in the still, and most of the alcohol recovered as dilute alcohol.

The ten gallons of strong alcohol thus obtained was returned to a still with twenty-five pounds of quick lime, and the operation as above repeated. Eight gallons of alcohol was obtained, separated as before in fractional portions of one gallon.

The specific gravity of the several portions taken on a balance with the one thousand grain bottle, temperature at 60° F. is shown in the following summary:

Gallon.	First Distillation.	Second Distillation.
1st.	·80170	·80978
2nd.	·79756	·79700
3rd.	·79610	·79461
4th.	·79762	·79516
5th.	·80040	·79458
6th.	·79593	·79410
7th.	·79782	·79425
8th.	·79632	·79615
9th.	·79706	
10th.	·79780	
Mean	·79783	·79695

The density of absolute alcohol varies somewhat with different authorities; Drinkwater and Fowne give ·79381, Tralles, ·7939, and Gay-Lussac, ·7947; taking the mean of these authorities, we have ·79413.

It will be seen, on reference to the figures given above, that the sixth gallon of the second distillation alone is absolute, according to this mean standard, and that the mean of the 3rd, 4th, 5th, 6th, and 7th gallon of the second distillation is ·79425, being within the figures given by Gay-Lussac.

It will be noticed that the weakest alcohol distills over first, which would lead to the supposition of an affinity of the lime for the stronger portion of alcohol, or else water having a greater disposition to vaporize in an atmosphere of alcohol vapor.

The distillates all contain lime, which does not separate on standing, the stronger the alcohol the greater appears to be the amount of lime present. Redistillation from overdry tartaric acid removes the lime, (Gmelin,) and renders the alcohol perfectly clear.

—*Philadelphia, March*, 1874.

NOTES ON PTYALIN.

By Albert P. Brown, G. P.

At the pharmaceutical meeting held in January I stated that at the suggestion of my friend Dr. Marcy I had experimented with the parotid gland of the pig in order, if possible, to obtain ptyalin. Ptyalin is found in the saliva, and acts on starch, rapidly changing it into glucose. The parotid gland is the "salivatory gland, situated nearest the ear, which pours its secretion into the mouth during mastication. It is largest in the herbivora, and those animals whose food is most difficult of mastication. Its duct, called the duct of Steno, opens into the mouth opposite the second molar tooth.

The parotids were obtained from the butcher immediately after killing, chopped fine, macerated in water acidulated with hydrochloric acid for twenty four hours, and then separated by filtration. To the acidulated solution a saturated solution of sodium chloride was added, which caused a precipitate; this was allowed to stand until the precipitate rose to the surface; it was then skimmed off and placed on a muslin filter to drain, afterwards washed with a weak solution of sodium chloride, and then pressed. When all the salt solution had been removed and the mass was nearly dry, it was rubbed with a quantity of milk sugar and then thoroughly dried without heat, after which it was diluted with sugar of milk until five grains dissolved in one fluidrachm of water would emulsify to fluidrachms of cod liver oil; in other words, it is prepared in the same manner that pepsin and pancreatin are. Ptyalin is most beneficially employed in combination with pepsin and pancreatin, as a promoter of digestion. The hurried manner in which nearly all Americans masticate their food interferes with the very first condition to healthy digestion. I have seen some severe

cases of dyspepsia relieved with a few doses of the above combination. An elixir can be prepared from ptyalin in the same manner as elixir of pepsin and elixir of pancreatin; and when equal proportions of the three elixirs are mixed together and given in dessertspoonful doses, immediately before eating. the happiest results are obtained.

Ptyalin is a substance of the nature of diastase, both having the power of converting starchy food into soluble glucose. Diastase acts like pancreatin and ptyalin when mixed with cod liver oil. If a strong infusion of malt is mixed with cod liver oil, an emulsion is formed equal to the one produced when pancreatin or ptyalin is used.

In order to test the virtue of ptyalin, its action on starch and albumen was tried with the following results:

About a drachm of arrow root was mixed with a small quantity of water, about a quarter of a grain of ptyalin, freshly precipitated and without any sugar of milk being added to it, was added to the starch and water, and kept at a temperature of 100° Fahr. for twenty-four hours. At the expiration of that time the mixture was filtered and the filtrate tested for glucose by Trommer's test, which gave the characteristics of that test, reducing the cupric solution.

The action on albumen was next tried; ten grains of saccharated ptyalin was dissolved in one fluid-ounce of water, and ten drops of hydrochloric acid and one hundred and twenty grains of coagulated albumen were added; the mixture was kept at a temperature of 100° Fahr. for twelve hours, then filtered and the remaining albumen weighed. It was found that the ptyalin had dissolved about twenty grains, thus showing its inferiority to pepsin.

When I first made ptyalin I considered it only a curiosity, and kept it to show as such, but physicians became interested in it and began to prescribe it. There must certainly be some virtue in it. I first made one ounce, and the demand was so great that I had to make a larger quantity, which was soon exhausted, and another still larger lot was made, and the demand is still increasing.

I do not suggest ptyalin as a substitute for pancreatin, but to be used in combination with pancreatin and pepsin, as a promoter of digestion; and the three combined I think are better than either of them used singly.

Camden, N. J., March 16*th*, 1874.

ON THE PREPARATION OF MEDICATED WATERS.

By James Ruan, G. P.

I desire to present to the consideration of the readers of the Journal the following suggestion for the preparation of the different medicated waters of the U. S. Pharmacopœia which call for the intervention of magnesium carbonate in their preparation; the substance which I suggest to take the place of the latter, is paper pulp, prepared from chemically pure filtering paper.

The following is the "modus operandi" which I find yields very satisfactory results:

To prepare Aqua Menthæ Piperitæ—

Take of the Oil of Peppermint half a fluidrachm.

Chemically pure filtering paper one drachm.

Distilled water, two pints.

The paper is cut into small pieces and beaten up in a mortar with one ounce of water gradually added until reduced to a pulpy consistence; the oil is then added and triturated with the pulp until incorporated: fifteen ounces more of water is to be gradually added; the whole is then poured into a suitable sized bottle, the mortar rinsed out with the remaining pint of water, which is added to the first. The whole is then to be well shaken and then filtered through paper.

In the same manner prepare other aquæ medicatæ, which call for the intervention of magnesium carbonate. Peppermint water, prepared as above, is strongly impregnated with the oil, and beautifully transparent; some which I had prepared over three weeks, is still clear, with no appearance of sediment or separation of the oil.

Aqua Cinnamomi, prepared by the above process, is perfectly colorless, with the odor and taste strongly defined.

In the preparation of the waters by the above process, it is well to allow them to stand a few hours before filtration, occasionally shaking so as to thoroughly disseminate the pulp through the water, thereby giving the water greater surface to act on. I think the waters prepared according to the described manner equal to the distilled. The filters can be reserved for making additional pulp. I am not aware that the process I have described has been used before, and as the results I have found so satisfactory in my case, I thought I would present the process to the Journal for publication.

I have prepared Aqua Camphoræ by the same process, first reduc-

ing the camphor to fine powder by alcohol, and proceeding as with the others.

Philadelphia, March 19, 1874.

PRELIMINARY NOTICE ON THE OILS OF WORMWOOD AND CITRONELLA.

By C. R. A. Wright, D.Sc.

A quantity of pure oil of wormwood (obtained from Dr. Septimus Piesse) being submitted to distillation, the greater part passed over at a temperature close upon 200° C., a portion of blue oily product being obtained at a higher temperature (the *azulene* of Piesse and *cœrulëin* of Gladstone), and also a small quantity of substance boiling below 190°, and apparently containing a terpene.

The portion boiling at 200°—205° has been shown by Leblanc to be indicated by the formula $C_{10}H_{16}O$, whence Gladstone has termed the substance *absinthol.* It hence appears that this substance is isomeric with the myristicol found to exist in nutmeg oil and in camphor; and as each of these bodies breaks up into water and cymene when treated with dehydrating agents (*e. g.*, zinc chloride, phoshorus sulphide, etc.,) the action of these bodies on absinthol was examined.

When absinthol was heated with phosphorus pentasulphide, a moderately energetic action was perceived, and a colorless liquid distilled over; this was poured back into the retort when the action had ceased, and the whole kept very gently boiling for half an hour. On distillation, a quantity of hydrocarbon passed over at 170°—180°. The thermometer then rose rapidly, and a yellowish liquid distilled at 230° and upwards, the sum of two distillates representing about 35 or 40 per cent. of the absinthol used, and the first being about half as much again as the second.

The hydrocarbon was found to boil at close upon 176° after treatment with sulphuric acid and distillation over sodium. On analysis it appeared to be *cymene*, formed by the reaction

$$C_{10}H_{16}O = H_2O + C_{10}H_{14}.$$

The oxidation-products of this cymene are now undergoing investigation, in order to decide whether this hydrocarbon is identical with the cymene now known to be obtainable from many other sources.

Zinc chloride seems to act similarly, water, cymene and a resinous body being formed.

The liquid of higher boiling point appears to consist mainly of *thiocymene* or *cymyl-sulphydrate*, apparently identical with that recently obtained by Flesch from the products of the action of phosphorus sulphide on camphor. The boiling point of the pure substance lies close to 235°, and it corresponds in all respects with thiocymene described by Flesch, especially in the production of a mercury salt crystallizable from hot alcohol, and a silver salt only slightly soluble in hot alcohol. The properties of this body are undergoing further examination.

The reason for publishing this notice is the appearance of a paper by Beilstein and Kupffer (*Deut. Chem. Ges. Ber.*, vi, 1183) a few days ago, wherein the authors state that by the action of phosphorus sulphide on absinthol, cymene results, from which a sulpho acid can be prepared, giving salts identical with those similarly obtained from the cymene of cumin oil and that of camphor.

When oil of citronella is distilled, the main constituent seems to be an unstable body of formula $C_{10}H_{18}O$ (Gladstone found $C_{10}H_{16}O$. Not improbably essential oils vary in composition according to the climate, soil, etc.) The action of dehydrating agents on this oil seems to give rise, not to cymene, but to a terpene. By careful addition of two proportions of bromine, a product is obtained which on heating splits up thus:—

$$C_{10}H_{18}Br_2O = H_2O + 2HBr + C_{10}H_{14},$$

the resulting cymene being apparently identical with that already known.

It is proposed also to examine the oil of cajeput, borneol, and other substances of formula $C_{10}H_{18}O$ in the same way.—*Journ. of the Chem. Society, London, January*, 1874.

Varieties.

Action of Aërated Water on Lead.—M. Fordos.—The danger arising from the employment of leaden pipes has been much exaggerated, and is certainly far smaller than that resulting from the use of shot in cleaning out bottles. The author, having shaken up shot in bottles in the ordinary way, filled four of them respectively with white wine, red wine, quinine wine, and vinegar. After allowing the liquids to stand for a few days, he discovered lead in solution. These experiments may serve, he adds, to explain the frequent presence of lead in the human system, a phenomenon so general that Hervy, Devergie and Orfila have considered it a normal constituent.—*Chemical News, Jan.* 30, 1873, *from Bulletin de la Société Chimique de Paris*, tome xx, No. 11, *Dec.* 5, 1873.

Action of the Waters of the Seine and Ourcq upon Lead.—M. Fordos.—The author finds that the waters of the Seine and Ourcq attack lead, though more slowly than distilled water. The action is more rapid the more finely divided the metal. New lead is less rapidly attacked than old. The product of the action of these waters consists of carbonate of lime and carbonate of lead, and these waters, after this reaction, contain no lead in solution, or merely an infinitesimal quantity.—*Ibid.*

Poisoning by Cantharidal Collodion.—Dr. Ernst Schwerin, of Berlin, reports a case (*Berliner Klinische Wochenschrift*) of poisoning with cantharidal collodion. The patient, a woman aged twenty-three years, swallowed, through mistake, fifteen drops of the preparation. After about an hour had elapsed she was attacked with cramps in the lower part of the abdomen, for which, previously to sending for a physician, numerous household remedies were used. The doctor upon his arrival found the patient running about the room, with the arms crossed upon the abdomen, stopping after every few steps to void a few drops of urine, the passage of which was attended with intense pain. At times she fell into a species of catalepsy. The pulse was small and of moderate frequency. For some days albumen was found in the urine. Under treatment, she at the end of a few days was entirely recovered. It is interesting to notice that the sexual passion was not at all excited by the drug; and this goes to confirm the opinion of later observers, that the older physicians were mistaken in attributing aphrodisiac qualities to it.

Medical Times, Feb. 14, 1874. Wm. Ashbridge, M. D.

Croton Chloral Hydrate (*The Lancet,* January 31, 1874.)—Mr. J. Burney Yeo, after a number of systematic observations, has come to the following conclusions:

1. In croton chloral hydrate we possess a remedy of remarkable efficacy in some cases of neuralgia of the branches of the nervus trigeminus. 2. It has also the power of affording relief in other obstinate forms of neuralgia. 3. It is of use in certain cases of diffused muscular rheumatism. 4. It has but little effect in purely rheumatic cases. 5. In cases of localized pain and other nervous symptoms which we find in the class of persons we are in the habit of calling hysterical, this drug is of little or no use. 6. Its efficacy in procuring sleep seems very variable in moderate doses. Two grains will produce sleep in some sensitive females, while ten grains will not even cause drowsiness in non-sensitive males. 7. It is very valuable in some forms of irritative and spasmodic cough, and there is scarcely any remedy likely to prove more valuable for the relief of the distressing night-cough of chronic phthisis.

The dose varies from one to ten grains. From two to five grains may be given every hour, or the smaller dose every half hour, until fifteen grains have been taken. At present it hardly seems safe to go beyond that dose.

The subcutaneous injection of twelve grains in a cat produced, after long unconsciousness, a series of epileptic convulsions and death.—*Philada. Medical Times,* March 21, 1874.

Minutes of the Pharmaceutical Meeting.

The regular monthly meeting was held March 17th, 1874; fourteen members present.

Dillwyn Parrish was requested to occupy the chair, and the minutes of the last meeting being called for, they were read and approved.

Under the head of donations to the Library, which was first in the order of business, Mr. T. H. Hazard presented to the College Library a valuable collection of engraved plates of various plants. They were bound in three large volumes, and the title page bore the name Herbier Artificiel; the number of plates contained in this work was nearly a thousand. The thanks of the College were presented to Mr. Hazard for the acceptable gift.

Professor Maisch presented on behalf of the patentee, Mr. Jas. H. Plaisted, of Waterville, Maine, a suppository mould, for which the inventor claims merit. The mould is in two pieces, held in their places by a rubber band; they are prevented from slipping horizontally by a very simple arrangement, which, however, permits them to slide in a plane parallel to the axes of the suppositories; on this point the inventor claims superiority, for he argues that, when the suppository is cold enough, a slight sliding motion in the direction indicated, suffices to drop them out.

Joseph P. Remington presented a urethral suppository mould on behalf of W. S. Wellcome, a graduate of the last class, who had written his thesis on the subject; the cooling box was nicely made of zinc, which was an improvement on the tin ones usually employed.

A general discussion was entered into on the subject of suppository moulds, during which Edward Chiles spoke of a mould made by Maw & Sons, which was somewhat similar to Plaisted's, and which he was much pleased with; the horizontal slipping movement was controlled by a pin at the end, which fitted in a corresponding depression in the other mould.

Professor Maisch exhibited a sample of what was said to be wild cherry bark, but which on examination proved to be very largely adulterated; it seemed to be principally composed of the bark of the sassafras trunk. He also showed a sample of Vanilla pampona from Laguayra, and two beans, the origin of which was not exactly known; they were very much broader than the regular bean, and although possessed of a number of the characteristics of the true bean, did not possess the delightful odor of the genuine. Dr. A. W. Miller said that they had been offered for sale in the city at much less than the cost of the genuine, and the statement was made that they were the product of the wild plant.

Mr T. H. Hazard presented two specimens as contributions to the cabinet; one, the seed vessel of Trappa Bicornis (ox-head), the other from a species of Martynia.

The reading of papers being now in order, Dr. A. W. Miller read one on "Disinfectants, Antiseptics, and Deodorizers," which was referred to the Publication Committee.

Joseph P. Remington exhibited a new form of condenser, in which the principal of Liebig's was retained, but instead of one central tube there were seven, arranged parallel to each other and drawn together at the end so as to deliver the distillate into a narrow-mouthed receptacle. By this arrangement the large amount of condensing surface which is desirable in the ordinary worm, is obtained, whilst the objection to the worm, the difficulty of cleaning, is obviated.

Dr. W. H. Pile showed a sample of phosphoretted resin which had changed color from exposure to sun-light; it had become a beautiful red; he also presented a sample of an emulsion made with phosphoretted resin, and a tube containing a mixture of alcohol and the resin showing that the phosphorus had separated in the form of a fine precipitate at the bottom.

No further business coming before the meeting, it then adjourned.

Jos P. Remington, *Registrar.*

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—The examinations for the degree and title of Graduate in Pharmacy were completed early in March, the following questions having been submitted to the candidates, and were required to be answered in writing:

Chemistry. rofessor Robert Bridges, M D. Session 1873–74.

No. 1. State and explain the processes for preparing Corrosive Sublimate and Calomel; and give their physical and chemical properties, the impurities they may contain, and the methods, by which they may be detected.

No 2. What is the natural source of Potassium Carbonate? Give the methods of obtaining the commercial and officinal varieties, the physical and chemical properties of the officinal forms, and the impurities contained in either.

No. 3. What is Aqua Regia and how is it made? State the physical and chemical changes which occur during its production, and the difference in chemical properties from those of the acids used in its formation.

No. 4. What is the substance commonly known by the name of Arsenic? Give the source and method by which it is obtained, its physical and chemical properties, its effects in overdoses on the system, and best antidotes.

No. 5. What is Chlorine? State and explain its mode of preparation, and the principal officinal compounds in whose production the gas is used.

No. 6. What are the officinal forms in which Calcium Carbonate is used as a medicine, and the methods by which they are prepared for medicinal use; and when by chemical means, give a formula of the reactions.

No. 7. What are the officinal preparations of Sulphur? State their mode of preparation and any impurity or adulteration they may contain.

No. 8. How is Iodide of Lead prepared? State the reasons for using the Lead Salt directed by the Pharmacopœia and any impurities which may arise from using other Salts of Lead.

No. 9. What are the antidotes for Corrosive Sublimate, and the Salts of Lead and Antimony?

No. 10. By what tests may the Magnesium, Zinc and Cadmium Salts be distinguished?

Materia Medica. Professor John M. Maisch. Session 1873–74.

1. Give the botanical characters of the natural order of Gentianaceæ; name the drugs derived from this order, and state their medicinal properties.
2. What is Rhubarb? Where, and from what plant is it obtained? Give its principal structural characteristics, and also the difference from European and American Rhubarb.
3. What part of May-Apple is used in medicine? Give the name of the plant, describe the officinal part, and give an outline of the process for the most important pharmaceutical preparation, as well as its yield and composition.
4. Give the name, natural order and habitat of the plant yielding Cascarilla. Describe the drug and give its important chemical constituents, its medicinal properties and dose.
5. Sabina.—Name, natural order and habitat of the plant. Describe the drug and its medicinal constituents; what are its properties, and how does it differ from a similar indigenous drug?
6. What is Kousso? Where, and from what plant is it obtained? Describe the drug and give its important constituents, medicinal properties and dose
7. Describe Juniperberries as to origin, habitat and natural order of the plant, structure, composition and medicinal use.
8. Describe the structure of Mustard Seed. What is the difference between White and Black Mustard Seed in regard to origin (including natural order and habitat), appearance and composition?
9. What is Kamala? Give name, natural order and habitat of the plant, the structure of the drug, its composition, properties and test of purity.
10. Give the name, natural order and habitat of the plant yielding Camphor. How is crude Camphor obtained? What are its impurities? How is it purified? Give its chemical composition, and that of the Borneo Camphor.

Questions in Pharmacy, for Professor William Procter, Jr., by Joseph P. Remington. Session 1873–74.

1. Define Specific Gravity. What instruments are employed in ascertaining the specific gravity of solids and liquids? How do you take the specific gravity of a substance lighter than water; and why is it necessary to fix upon one constant temperature in taking specific gravities?
2. What do the following terms mean, in a pharmaceutical sense: "Moderately Fine Powder," "Saturated Solution," "Flocculent Precipitate," "Conical Percolator." State, in a general way, how you would proceed in making a percolation of a drug.—Wild Cherry Bark, for an instance.
3. State the general characters of Acidum Carbolicum; including its specific gravity, solubilities, and boiling point. From what source is it obtained? What are its medical properties, and into what officinal preparations does it enter?
4. Give the officinal formula for making Spiritus Aetheris Nitrosi. Why are Copper Turnings used; and what is the nature of the residue left in the retort? Give the general characters and tests for strength, as given in the United States Pharmacopœia.
5. What is the general officinal process for obtaining volatile oils from plants? and what precautions are necessary in obtaining pure oils? Give the formula for Oil of Copaiba, and state why it requires special treatment.
6. Give the reasons for employing
   Ether, in making Tinctura Opii Deodorata, in U. S. P.,
   Crystallized Sulphate of Potassium, in Pulv. Ipecac. Comp.,

Muriatic Acid, in Ext. Conii Fruct. Fluidum,
Alcohol, in Hydrargyri Iodidum Viride,
Carbonate of Lead, in Liquor Guttæ Perchæ.

7. Give the composition of Pulvis Aromaticus, Pilulæ Antimonii Compositæ, Pulveres Effervescentes Aperientes, Mistura Glycyrrhizæ Composita, and Mistura Potassii Citratis.
8. What chemical relation does Glycerin assume in the composition of fixed oils? How is it separated? On what property of Glycerin does the modern process for obtaining it depend? State its specific gravity, solubilities, solvent powers, and tests of purity, as set down in the United States Pharmacopœia.
9. Define the term Alkaloid. State how Morphia, Atropia, Aconitia, Strychnia, and Veratria may be recognized; and give the acid, with which each is combined naturally, in the drugs from which they are obtained.
10. How do you prepare, by the United States Pharmacopœia, Liquor Plumbi Subacetatis, Suppositoria Acidi Tannici, Spiritus Aetheris Compositus, Trochisci Cubebæ, Unguentum Hydrargyri Oxidi Rubri?

Questions by the Examining Committee Session 1873–74.

1. State the officinal and botanical name of Squill of Commerce. What part of the plant is used? Give its active principles, medical properties, dose, the officinal preparations in which it enters, and a practical formula for making Vinegar of Squill.
2. What is the percentage of Strychnia in Citrate of Iron and Strychnia? What would be a proper dose? What officinal Salt of Iron contains an acid derived from the animal kingdom? Give the formula for its production, and what effect has boiling Nitric Acid on it.
3. Give the names of five excipients for pill masses, and state which of the five you would prefer to make pills of:

Pyrophosphate of Iron, ...	5 gr. each,
Sulphate of Quinia, ...	2 gr. each,
Compound Rhubarb Pills, ...	U. S. P.;

and give the composition of:
Compound Carthartic Pills,
Compound Iron Pills, and
Compound Squill Pills.

4. Give the locality, natural order, and officinal name of the plant which produces Assafœtida. State how the drug is obtained, and what is its principal constituent. Name all its officinal preparations
5. Give the formula for making each of the following preparations, and the dose of each for an adult:

Acetum Opii, Tinctura Opii,
Vinum Opii, Tinctura Opii Acetata,
Tinctura Opii Camphorata.

6. Give the process for making Precipitated Sulphur, and describe the chemical changes that take place. What is the best test of its purity? State what impurity is generally found in the ordinary Lac Sulphur of Commerce, and in what manner the impurities become incorporated with it.
7. Describe Strychnia as found in the shops. Give the average dose, tests of identity and purity, and name the officinal preparations to which it gives activity, with their doses.
8. Give the ingredients, mode of preparation, strength and doses, of Compound Tincture of Cinchona, Infusion of Digitalis, Syrup of Lactucarium, Compound Pill of Soap, and Ointment of Cantharides.
9. State which of the following prescriptions are proper and which improper, and, in the latter case, the reasons:

A.
℞. Extracti Hyoscyami,
Zinci Oxidi, . . . aa℈ii.
M. div. in pil. XL.
One three times a day for an adult.

B.
℞. Potassi Cyanidi, . . ʒi,
Acidi Citrici, . . gr. ij,
Syr. Pruni Virg.. . . f℥ij
M. S. A teaspoonful every three hours for an adult.

C. F. J. Jones' Child.
℞. Syr. Scillæ,
Syr. Ipecac., . . aa fʒij,
Liq. Ammonii Acet., . f℥iij.
Tinct. Aconiti Rad., . fʒss.
M. S. A teaspoonful every four hours.

D. For Hemorrhage.
℞. Liq. Ferri Subsulph., . fʒj,
Plumbi Acet., . . . ʒij,
Aquæ Dest. . . . f℥iv.
M. Sig. A teaspoonful every two hours.

10\. E. Write a formula for a one ounce Hypodermic Solution, of such strength, that five minims shall contain one-quarter grain of Sulphate of Morphia, and one-ninety sixth grain of Sulphate of Atropia.

How would you dispense the following prescriptions:

F.
℞. Ol. Terebinth., . . f℥ss,
Acaciæ,
Sacchari, . . . aa q. s.,
Tinct. Opii, . . . fʒij,
Aquæ, . . . f℥iij.
M.

G.
℞. Tinct. Benzoini Comp.,
Liq. Morphiæ Sulph., . aa fʒij,
Mucilag. Acaciæ, . . f℥ss,
Aquæ Camphoræ, . f℥i,
M.

The following specimens were placed on the table for examination by the candidates:

Chemistry.	Materia Medica.	Pharmacy.	Examining Committee.
Sulphur præcipitatum,	Sarsaparilla (Vera Cruz)	Ferri et quiniæ citras.	Cimicifuga,
Acidum sulphuricum,	Leptandra,	Confectio sennæ,	Buchu,
Potassii chloras,	Quassia, (Jamaica)	Pilula ferri carbonatis,	Myrrha,
Sodii bicarbonas,	Rosmarinus,	Extr. colocynth. com. pulv.	Acidum oxalicum,
Sodii boras.	Santonica,	Aqua Fœniculi,	Magnesii sulphas,
Alumen,	Cort. fruct. granati,	Tinct. nucis vomicæ,	Zinci sulphas.
Potasii bichromas,	Cubeba,	Acid sulphuricum arom.	Vinum ergotæ,
Ferri subcarbonas,	Physostigma,	Extr. sarsapar. comp. fld.	Syrupus Senegæ,
Tinctura ferri chloridi,	Lupulinum,	Linimentum calcis,	Extr. uvæ ursi fluid,
Hydrarg. chlorid. corros.	Aloe capensis.	Ung. Hydrarg. iodidi rubri.	Ung. zinci oxidi.

The following report was handed to the Board of Trustees, and the gentlemen named therein were duly elected Graduates in Pharmacy:

The Professors and Committee of Examination of the Philadelphia College of Pharmacy, report that the following named candidates, having the required qualifications, have passed their examinations favorably, and are recommended for the degree of "Graduate in Pharmacy."

Their names are set down in the order of merit:

	Name.	State.	Thesis.
1	Edward Seymour Dawson,	New York.	*Juglans Cinerea.*
2	Frederick Belding Power,	"	*Resina Podophylli.*
3	Alexander King,	"	*Maclura Aurantiaca.*
4	William Landon Harrison,	Virginia.	*The Balsam of Liquidambar Styraciflua.*
5	Geo. Martin Shriner Hull,	Pennsylvania.	*Linaria Vulgaris.*
6	Frederick John Kruell,	Illinois.	*Helianthemum Corymbosum.*
7	Francis Joseph Koch,	Iowa.	*Helinium Autumnale.*
8	John Levy Williams,	Pennsylvania.	*The Bitter Principle of Wild Cherry.*
9	Bartholomew Bantley,	Wisconsin.	*Chimaphila Umbellata.*
10	William Dilmore,	New Jersey.	*Actæa Alba.*
11	David Ackerman, Jr.,	Pennsylvania.	*Mistura Assafœtidæ.*
12	Edmund Bakhaus,	Ohio.	*Polygonatum Multiflorum.*
13	Thomas Kramer Hilton,	Pennsylvania.	*Potassium Acid Tartrate.*

14	John Beatty Price,	Delaware.	*Rubus Villosus.*
15	John Joseph Miles,	Mississippi.	*Fluid Extract of Azederach.*
16	John Wm. H. Oppermann,	Pennsylvania.	*Vaccinium Resinosum.*
17	Samuel Benjamin Spence,	Wisconsin.	*Silphium Perfoliatum.*
18	Frank Stewart Savage,	Pennsylvania.	*Syrup Lactopho phate of Iron and Lime.*
19	Jefferson S. Conner,	Indiana.	*The Philadelphia Drug Law.*
20	Rush Blackfan Smith,	Pennsylvania.	*Aconitum Napellus.*
21	Edgar Melville Hattan,	Ohio.	*Cephalanthus Occidentalis.*
22	William Baker Banks,	Pennsylvania.	*Practical Remarks.*
23	Samuel Charles Blair,	"	*Steam Apparatus for Fluid Extracts.*
24	John Warrington Haines,	New Jersey.	*Progress of Pharmacy.*
25	William Francis Dugan,	Pennsylvania.	*Glycerin.*
26	George Christian Lescher,	"	*Saturated Tinctures.*
27	Frederick William Latz,	New York.	*Pharmacy of the Present Time.*
28	John Mumbauer Wert,	Pennsylvania.	*The Apprentices Assistants.*
29	Augustus Henry Keenan,	"	*Zinc.*
30	Adrian Bowens,	Indiana.	*The Constituents of Dr. Sage's Catarrh Remedy.*
31	Henry Solomon Wellcome,	Illinois.	*Urethral Suppositories.*
32	John Markley Rowe,	North Carolina.	*Bromide of Morphia.*
33	George Harris Jacobs,	Missouri.	*Examination of Quinine Pills.*
34	Howard Kingsbury,	Pennsylvania.	*Capsicum.*
35	Charles Johnson Biddle,	"	*Polygonum Hydropiperoides.*
36	Isaac Hansell Rowley,	"	*Pepsin.*
37	William Heckenberger,	"	*Cod Liver Oil.*
38	Eugene Ziegler Hillegas,	"	*The Adulterations of Medicinal Substances.*
39	Frederick Rienhamer,	"	*Affinities of Chemical Attraction.*
40	Robert Hoosie Johnson,	"	*Acidum Tannicum.*
41	David Hunter,	"	*Fluid Extract of Ipecac.*
42	Frank Robert Jummel,	"	*Syrupus Ferri Iodidi, U. S. P. and Ferrum, &c.*
43	Thomas Daniel Terrell,	"	*Digitalis Purpurea.*
44	Augustus Crane Buzby,	New Jersey.	*Remarks on Elixirs.*
45	Isaac Newton Coffee,	Kentucky.	*The Advantages of a Knowledge of Botany to Pharmacy Students.*
46	Edward Everett Hazlett,	Ohio.	*Indigofera Tinctoria.*
47	John Lytle Royston,	Kentucky.	*The History of Medicine.*
48	Thomas Loudes Buckman,	Pennsylvania.	*Phytolacca Decandra.*
49	Harvey Briarley Hutchinson,	New Jersey.	*Oleate of Mercury.*
50	James Aloysius Kinnear,	Arkansas.	*Silphium Laciniatum.*
51	Alfred George Mays,	Pennsylvania.	*Gentiana Lutea.*
52	Edmund Albert Reed,	Illinois.	*Pharmacy.*
53	Thomas Charles Morgan,	Massachusetts.	*Eucalyptus Globulus.*
54	Frank Murrell Budd,	New Jersey.	*Suppositories.*
55	Millard Filmore Tomlin,	"	*Cypripedium Pubescens.*
56	John Frederick Stoltz,	Pennsylvania.	*Preparations of Ferrum Pomatum.*
57	Henry Northam Bryan,	"	*Cypripedium Acaule.*
58	Francis Marion Tilton,	"	*Unguentum Hydrargyri Nitratis.*
59	Franklin Thomas Hartzell,	"	*Commentary on Pharmacopœia Preparations.*
60	Louis Philip Leibold,	Texas.	*Early Closing.*
61	Jonas Eberhart Roeder,	Pennsylvania.	*Chlorinium.*
62	Jacob Hoeckley Hand,	"	*Extracta Fluida.*
63	William Kline Mattern,	"	*Datura Stramonium.*
64	Alexander Wilson Jacob,	"	*Helianthemum.*
65	Abram Lawrence Lumb,	New Jersey.	*Emplastrum.*
66	George Hoopes Johnson,	Pennsylvania.	*Relations between Animal and Vegetable Matter.*
67	Robert Reed Stewart,	"	*Podophyllum.*

68 Charles Sparrow,	Kansas.	*Algarobia Glandulosa.*
69 Alfred Barth,	Pennsylvania.	*Hydrargyri Iodidum Viride.*
70 Charles Ouram,	"	*Anagallis Arvensis*
71 Joseph Hall Marshall,	"	*Preparation of Sugar Doses.*
72 Benjamin Rowland Morrow,	"	*Advancement of Medicine.*
73 Aaron Peter Jacoby,	"	*Eupatorin.*
74 Francis Henry Ebur Gleim,	"	*Castanea Vesca.*
75 Samuel Edwin Walker,	"	*Solidago Odora.*
76 James Armstrong Allen,	New Jersey.	*Arbutin.*
77 Charles Franklin Goodno,	Pennsylvania.	*Pilula Ferri Carbonatis.*
78 Lewis Kossuth Acker,	"	*Suppositories.*
79 Paul Graef, Jr.,	Ohio.	*Prinos Verticillatus.*
80 George Snavely Henry,	Pennsylvania.	*Urinary Analysis.*
81 Harry Barndollar,	"	*Chloral Hydrate.*

Signed Robert Bridges, William J. Jenks,
John M. Maisch, Samuel S. Bunting,
Joseph P. Remington, Albert P. Brown,
William McIntyre.

The commencement was held at the Academy of Music on the evening of March 12th, in the presence of a very large and attentive audience. The graduates appeared with crape upon their arms, in memory of Professor William Procter, Jr., deceased. The degree of Graduate in Pharmacy was conferred by the President of the College, Dillwyn Parrish, and the valedictory address was delivered by Professor Robert Bridges. The distribution of bouquets, books and other presents to graduates was conducted under the direction of the Committee on Arrangements, after which the proceedings closed as they had commenced, with music by the Germania Orchestra.

The Summer Course on Botany will commence on Wednesday, April 8th, at 3 o'clock, P. M.

Alumni Association of the Philadelphia College of Philadelphia.—The annual meeting was held in the College Hall, March 5th, 1874, at 3½ o'clock, P. M. At this meeting the business of the Association was transacted. The President gave his annual report. The following officers were elected: President, William McIntyre; Vice-Presidents, Jos. P. Remington, and Albert P. Brown; Recording Secretary, Edwin McC. Boring, 10th and Fairmount avenue, Philadelphia; Corresponding Secretary, C. H. Kolp; Treasurer, Edward C. Jones, S. E. corner of Fifteenth and Market streets, Philadelphia; Executive Board, Wallace Procter, Jas. A. Parker, Rich. V. Mattison, E. D. Paxson, and H. B. French; Trustee of Sinking Fund, Thomas S. Wiegand; Orator Lawrence Turnbull, M. D.

It was decided to admit *all* graduates of the College to membership, restricting the right to certificates of membership and annual reports to those who contribute $5, as heretofore, and as the objects of the Association are good, it is to be hoped that all will avail themselves of this privilege.

The public reception to the graduating class, given upon March 10th, at 8 o'clock, in the College, was well attended, the ladies forming a large proportion of the number. The exercises consisted in the annual address by Wm. C. Bakes; calling of new members by the Secretary; presentation of the gold

medal to Edward S. Dawson, Jr., of New York; handsomely engraved certificates for proficiency in chemistry, pharmacy, and materia medica were awarded to the following students respectively: F. B. Power of New York, Wm. L. Harrison of Virginia, and F. J. Kruell of Illinois. Joseph P. Remington delivered an eulogy on the late Professor William Procter, after which a microscopical exhibition was held under the direction of Professor John M. Maisch and Albert P. Brown. An opportunity was afforded for social conversation, and at a late hour all retired from one of the most interesting meetings ever held by the Association.

Edwin McC. Boring, *Secretary.*

New York College of Pharmacy.—At a regular meeting of the trustees of this College, held March 5th, 1874, the following preamble and resolutions were unanimously adopted:

Whereas, It has pleased Almighty God, in his infinite wisdom, to remove from this transitory existence our friend Prof. Wm. Procter, Jr., and, whilst mingling our sympathy with that of his bereaved family, let us not be unmindful that "in the midst of life we are in death," and, although possessed of all the enjoyments and comforts of this world, how short the time we may be permitted to partake of them.

Our deceased friend was in the prime of life, enjoying the success of his varied labors in the cause of science and pharmacy, happy and contented, ever ready and willing to diffuse his knowledge to others; his amiability, modesty and spotless integrity, united to a cheerful temperament, endeared him to all who enjoyed the privilege of knowing him.

Alas! in the vigor of manhood, and from off a career of usefulness to his fellow-beings, he was taken away, after a brief illness, and his spirit returned to the God who gave it, but his memory will ever remain among his professional brethren as one who ranked foremost amongst those who labored for the advancement of their profession. Be it therefore

Resolved, That this College deeply deplore the loss they have sustained by the death of Wm. Procter, Jr.

Resolved, That this College tender to the bereaved widow and immediate relatives their sincere condolence in their affliction.

Resolved, That a page in our record book be dedicated to his memory with his name thereon inscribed.

Resolved, That a copy of these resolutions, duly signed by the President and Secretary, be forwarded to the widow of our deceased friend, and the same be published in the "Journal of Pharmacy" and "Druggists' Circular."

At the annual meeting of the College, held March 19th, the following persons were elected: Paul Balluff, President; Wm. Neergaard, Bernard H. Reinold, and Wm. Wright, Jr., Vice-Presidents; Theobald Frohwein, Treasurer; M. L. M. Peixotto, Secretary; H. A. Cassebeer, Geo. C. Close, David Hays, William Hegeman, Ewen McIntyre, Edward L. Milhau, William N. Olliffe, Gustavus Ramsperger, Charles Rice, Daniel C. Robbins, John W. Shedden, Trustees; Paul Balluff, P. W. Bedford, Charles Rice, Ewen McIntyre, F. Alfred Reichardt, Permanent Committee on U. S. Pharmacopœia; Paul Balluff, P. W. Bedford, M. L. M. Peixotto, Gustavus Ramsperger, D. C. Robbins, Delegates to Meeting of American Pharmaceutical Association.

New Jersey Pharmaceutical Association.—At the annual meeting held in Jersey City Feb. 11th, the following officers were elected for the current year: President, James R. Mercein, Jersey City; Vice-Presidents, Randal Rickey, Trenton, and J. De la Cour, Camden; Recording Secretary, Geo. H. White, Jersey City; Corresponding Secretary, Chas. B. Smith, Newark. Executive Committee, A. S. White, Mount Holly; C. H. Dalrymple, Morristown; P. V. Levering and W. R. Laird, Jersey City. The next annual meeting will be held in the City of Camden.

Maryland College of Pharmacy.—The Twenty-second Annual Commencement of the Maryland College of Pharmacy was held Monday evening, March 23d, at Germania Mænnerchor Hall, and the President, John F. Hancock, conferred the degree of Graduate in Pharmacy upon the following gentlemen—the names in the order of merit:

Wm C. Schiller,	Sanguinaria Canadensis,	Maryland.
E. W. Eilau.	Asarum,	"
Edward M. McComas,	Cimicifuga Racemosa,	"
Chas. F. Roehle,	Ricinus Communis,	Prussia.
F. W Koss,	Opium.	Virginia.
Chas. G. Smith,	Helnoias Dioica,	Maryland.
D. E. Schoolfield	Notes on Chemistry.	Virginia.
Wm. Partlow Thompson,	Scabiosa Succisa,	Maryland.
Oscar Hoffmann,	Antimony,	Prussia.
Henry R. Horstmann.	Hydrastis Canadensis.	Maryland.
Adolphus B. Long.	Actinism,	Ohio.
Ernst Hasenbalg,	Chloral Hydrate,	Prussia.
D. J. Clarke,	Leonurus Cardiaca,	Maryland.
Thos. L. Beckenbaugh,	Notes on Pharmacy.	"
A. Schloss,	Acidum Tannicum,	"

Seven first course students received honorable mention.

The Valedictory Address was delivered by Dr. Wm. Simon, Professor of Chemistry.

The annual meeting of the College convened at 3 P.M., March 24th, John F. Hancock, President, in the chair, Dr. Edward Eareckson, Secretary, thirty members answering to their names. Mr. John F. Hancock presented the College with a copy of Squire's Companion to the British Pharmacopœia, and placed on exhibition the first edition of the U. S. Pharmacopœia, of 1820, also other old works on pharmacy.

A. P. Sharp related reminiscences of the late Prof. Wm. Procter, Jr, locating and describing the house (Cathedral street) in this city in which he was born.

Dr. Joseph Roberts read a paper on conferring the degree of Doctor of Pharmacy, which elicited considerable discussion, participated in by Prof. Moore, L. Dohme and others. The resolutions embodied in the paper were referred to the Committee on Revision of By-Laws.

Mr. Hancock called attention to the use of filtering paper pulp for division

of essential oils in preparing medicated waters, claiming advantages over present method, and exhibiting several officinal waters so made.

After some further discussion, of a conversational character, the meeting adjourned to the "Rose House," where President Hancock introduced to the company present B. Rush Roberts, Esq., formerly a professor of the College, who delivered an interesting address, descriptive of pharmacy as practiced half a century ago. On its conclusion the entire party, numbering near sixty, repaired to the supper-room, and demonstrated their appreciation of the efforts of the Committee of Arrangements by doing ample justice to the substantial repast spread. A series of toasts were offered by the Chairman and appropriately responded to.

J. Newport Potts, Rep. M. C. P.

Louisville College of Pharmacy.—The third course of lectures was attended by 26 students, five of whom, all from Louisville, have received the degree of Graduate in Pharmacy. Their names are placed in order of merit: John Rudell, Henry W. Preissler, Charles P. Frick, Charles O. Frick and William Tafel. The summer course, which is devoted exclusively to botany, will commence on the first Wednesday in April.

The Legislature of Kentucky has passed a pharmacy act applying to all towns and cities of 5000 or more inhabitants. The State Board of Pharmacy is to consist of seven pharmacists, at least four of whom are to be members of the Louisville College of Pharmacy, the selection to be made out of ten nominated by the College. At the annual meeting of March 10th, the following gentlemen were nominated: Emil Scheffer, Fred. C. Miller, Hugh Preissler, Vincent Davis, G. H. Cary, John Colgan, W. W. Smith, S. F. Dawes, W. G. Schmidt, C. Lewis Diehl.

The following gentlemen were appointed a committee to aid Prof. E. Scheffer, the Local Secretary of the American Pharmaceutical Association, in making preparations for the meeting in September next: Lee Beckham, Wiley Rogers, J. A. McAfee, H. A. Pfingst and Ferd. Lingelbach.

The election of the Board of Directors resulted as follows: E. Scheffer, C. Lewis Diehl, Vincent Davis, W. G. Schmidt, S. F. Dawes, Lee A. Beckham, F. C. Miller, W. W. Smith, J. R. McAfee, John Colgan, Ferd. J. Pfingst, —— Shafer. The meeting then adjourned.

The Board of Directors then assembled and elected the following officers: C. Lewis Diehl, President; E. Scheffer, Vincent Davis, Vice-Presidents; S. F. Dawes, Treasurer; F. C. Miller, Recording Secretary; W. G. Schmidt, Corresponding Secretary; J. A. McAfee, Curator.

At a stated meeting of the Board of Directors, held Monday, March 9th, 1874, a special committee was appointed to report at the annual meeting, on the following day, and to draft suitable resolutions as a tribute of respect to the memory of the late Prof. Wm. Procter, Jr., of Philadelphia, which, upon presentation, were unanimously adopted.

Whereas, It has pleased an All wise Providence to remove from his sphere of usefulness our highly esteemed brother Prof. Wm. Procter, Jr., of Philadelphia; and

Whereas, The loss of his valuable services for the advancement of pharmaceutical knowledge will be felt and lamented throughout the whole land; be it therefore

Resolved, That the members of the Louisville College of Pharmacy deeply mourn the loss of one who stood highest and foremost in his profession as pharmacist, instructor and journalist, ever faithful, thorough and persevering in the cause which he represented.

Resolved, That we tender to his bereaved family our deepest sympathy and condolence in this their hour of sorrow; but, while we lament with them the irreparable loss, we know that his name and his deeds of merit will live after him among us.

Resolved, That these resolutions be spread on the journal of our College, and a copy of the same be forwarded by the Corresponding Secretary, to the family of the deceased, and also to the Philadelphia College of Pharmacy, with the request of its publication in the next number of the "American Journal of Pharmacy."

Ferd. J. Pfingst,
S. Fisher Dawes, } Committee.
John Colgan,

Wm. G. Schmidt, Corresponding Secretary, L. C. P,

Chicago College of Pharmacy.—At the commencement, held March 10th, the President conferred the degree of Graduate in Pharmacy upon the following gentlemen: Chas. M. Ford (lacto-phosphates), Littleton Thompson (dilute phosphoric acid), L. C. Hogan (pink root), and E. L. Stahl, Jr. (wild cherry). The valedictory address was delivered by Professor D. B. Trimble.

At the special meeting held February 19th, 1874, the President, Mr. Thos. Whitfield, in a few feeling remarks, announced the death of Professor William Procter, Jr. On motion, a committee was appointed to draft resolutions expressive of the sentiments of the College. Messrs. Sargent, Ebert and Trimble were appointed, and subsequently reported as follows:

IN MEMORIAM.

Whereas, The members of this College have learned, with profound sorrow, that Professor William Procter, Jr., departed this life on the 10th instant, and

Whereas, We, in common with all pharmacists, mourn the loss of our friend, who has so long maintained the honorable and well-deserved title of the "Father of American Pharmacy," and who has in a busy and eminently useful life done so much to enrich the profession in its literature and in its practice; it is therefore

Resolved, That in the death of Prof. Procter a material loss has been sustained, and the cause of education loses one of its most experienced and ablest champions.

That we deplore the loss of so valuable a life and example to our sister institution and to the whole pharmaceutical body.

That we respectfully offer to the sorrow stricken family our warmest sympathy in their great bereavement and will cherish with them the memory of one who has endeared himself to our hearts as a generous friend, a wise counsellor, and a benefactor of his race.

That we extend to the Philadelphia College of Pharmacy our earnest sympathy in their affliction in the loss of one who has so long and ably filled the position of Professor of Pharmacy and editor of their journal, causing the name of their College to be honored wherever pharmacy is recognized.

That in the death of Professor Procter American pharmacists have lost their most honored and ablest leader, a just and noble man, worthy our imitation in all the relations of life.

That as a College of Pharmacy we do hold his name in respectful memory as the first Professor of Pharmacy in America, as a constant friend to pharmacal organizations, and in an especial manner to our own College.

That a copy of these resolutions be sent to the family of our deceased friend, and to the Philadelphia College of Pharmacy, and that they be published in our proceedings.

E. H. Sargent,
Albert E. Ebert, } Committee.
D. B. Trimble,

Cincinnati College of Pharmacy.—The commencement exercises were held March 12th, when the President, Dr. Judge, conferred the degree of Graduate in Pharmacy upon Messrs. L. Schwab, J. H. Sauns, L. Heister, M. Siereveld, T. F. Norwood, C. F. Keener, C. F. H. Laval, A. Delany, E. T. Harley, F. H Nenzel, and A. M. Knerze. An address was delivered by Rev. Thos. Vickers, and the graduates' valedictory by Mr. Norwood, after which Mr. Schwab presented to the faculty a copy of Chambers' Encyclopedia.

At a meeting of the College, March 24th, Dr. Eaton suggested the propriety of taking some action in regard to the death of the late Professor Procter, and presented the following preamble and resolutions, which were unanimously adopted:

Whereas, Professor William Procter, Jr., has, by the inevitable decree of the All-wise Governor of the Universe, been removed from his sphere of labor and usefulness upon earth; and

Whereas, He was an honorary member of this College, and well known to all of us by his life-long devotion to the interests of pharmacy, as well as to some of us personally, we feel it our duty, as it is our pleasure, to bear testimony in an official manner to our appreciation of his great moral and professional worth, to the inestimable benefits he bestowed upon the science and art of our profession by his long and unwearied efforts, and to the great loss all have sustained in his death; therefore be it

Resolved, That in the death of Professor Procter pharmacy has lost one of its most honored, respected and devoted representatives, society one of the noblest and best of men, and his family a most tender and loving husband and father.

Resolved, That to the afflicted family of the deceased, and to our brethren of the Philadelphia College, we tender our heartfelt sympathy in their sad bereavement.

Resolved, That we will, one and all, ever cherish his memory, respect his counsels, and strive to emulate his noble example in our daily lives.

St. Louis College of Pharmacy.—At the commencement, on March 10th, the following gentlemen received the degree of Graduate in Pharmacy: Jas. O'Byrne (nickel), John Farrill (jalapa), Robert C. Schrader (carbo ligni), William Christman (emulsions), J. C. Weingærtner (lead), Robert S. Drake (calamus), John W. Tomfohrde (digitalis), W. R. Hind (powders and pills), Adolph Pfeiffer (hints on prescriptions), Lafayette Hill, Jr. (wild cherry), L. Meyers Connor (arsenic), H. Strassinger (carbonate of lead), F. H. Kenner (arsenic),

Werner Wendelstorff (leaves), Fred. Schmidt (arsenic and its preparations). The valedictory address was delivered by Prof. Hubert Primm.

St. Clair Pharmaceutical Association of Southern Illinois.—At the quarterly meeting, held March 10th, Prof. J. M. Maisch was elected to honorary membership. A memorial was then read, signed by Messrs. A. Rudolph, H. Steingoetter and A. G. F. Streit, setting forth the great utility of a preparatory school of pharmacy, and offering to teach chemistry, materia medica and pharmacy. The report was accepted, and the signers of the report were appointed a committee, with power to take all necessary steps.

Pharmaceutical Society of Great Britain.—At the pharmaceutical meeting held March 4th, Mr. Thomas H. Hills presiding, Professor Bentley gave an account of the origin and uses of coca leaves, of which, according to Johnston, 30,000,000 pounds are annually used in South America.

Mr. Greenish read a note on a decomposed ginger lozenge, which had been made partly of potato starch, but had become mouldy, then absorbed moisture, and finally broke down into a soft granular mass; in the mould a fungus was found, belonging to the same genus as the one to which the potato disease is said to be due, hence Mr. Greenish attributed the dextrin found in the lozenge to be the produce of diseased potatoes, spores of the fungus of which had clung to the starch. Messrs. Hills and Hampson attributed the decomposition to the ginger rather than to the starch; by keeping them in dry, stoppered bottles the mould is prevented.

Mr. Daniel Hanbury read a paper on the Ngai camphor from China, which, from botanical specimens sent by Mr. Fred. H. Ewer, was ascertained to be obtained from *Blumea balsamifera*, De C., a tall, coarse-looking herbaceous plant of Eastern Asia, an abundant weed in Assam, Burma and the Indian Islands. This camphor is sold there at $250 the pecul = 133⅓ lbs., about ten times the price of Formosa camphor, and at one-eighth the price of the best Malay camphor. It is used medicinally, and in the manufacture of the scented Chinese inks. Mr. S. Plowman, in a paper read at the same meeting, describes the crystals and its physical and chemical properties; it is isomeric with Borneo camphor $C_{10}H_{18}O$, but has a different odor, is harder and more brittle, and volatalizes at a higher temperature (158° C.), its boiling point being about 210° C.

Mr. F. Baden Benger, alluding to the paper of Mr. Towerzey,* read a paper, in which he proposes to keep medicinal hydrocyanic acid in a bottle shaped liked the barrel of an ordinary half-ounce syringe, drawn out into a long and fine point at one end, which is sealed in the flame of a spirit lamp or Bunsen burner; it is then filled with the acid, and a piece of vulcanized sheet rubber is tied *tightly* over the mouth. When required for use, the point is scratched with a file and broken off; by pressing the finger on the rubber any amount of acid may be taken out, only the same bulk of air entering the tube when pressure is removed. It is then placed with its point below the surface of mercury

* See American Journal of Pharmacy, February, p. 69.

contained in a little upright glass vessel. The diffusion of the vapor of the hydrocyanic acid is almost completely prevented by this contrivance, and no reduction of its strength can therefore take place. Pure rubber cannot be used, the acid vapors diffusing through it. Professor Attfield suggested as an improvement, instead of placing the thin tube into mercury, to draw a rubber cap over a thick quilted extremity.

Centro Pharmaceutico Portuguez.—At the meeting held January 3d, the following gentlemen were elected corresponding members: Antonio A. F. Santa Clara, of Abrunheira; Dr. Felix Martines, of Valencia; Charles Bullock, of Philadelphia; E. Baudrimont, of Paris, and Dr. Davreux, of Liege, Belgium.

Fourth International Pharmaceutical Congress.—A circular letter has been issued, dated St. Petersburg, January 15 (24) 1874, and signed by the President of the Committee on Organization, R. von Schrœder, and the Secretary, E. Rennard. It informs, on behalf of the Pharmaceutical Society of St. Petersburg, that the Fourth International Pharmaceutical Congress will be held in the city of St. Petersburg in August next, and that the following queries for discussion have been agreed upon:

1. How far are assistants personally responsible in the exercise of their professional duties?

2. How may the Committee of Inspection (Revisions Commission) of Pharmacies be most suitably organized?

3d. Is it necessary that the professorship of pharmacy should be occupied by a pharmacist?

4th. Is it not time that an international pharmacopœia be prepared?

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Proceedings of the American Pharmaceutical Association at the Twenty-first Annual Meeting, held in Richmond, Va., September, 1873. Philadelphia: Sherman & Co., Printers, 1874. 8vo, pp. 710.

This volume is just ready, and will be distributed to all entitled early in April, two months later than the editor expected to have it out, notwithstanding the delay before going to press. After the last forms had been put in type, and nearly the entire work was in the hands of the binder, a fire occurring in the building endangered the whole; and, though no loss or damage was done, it occasioned at least another unlooked-for delay.

The volume is the largest ever issued by the Association, that for 1871 excepted, which, together with the decennial index, has only a few pages more, but, without the index, falls about one hundred pages behind. In point of interest, we opine that its contents are even more creditable to the Association, and particularly to the working members thereof, and if, in its perusal, we have any regret to express, it is this—that most of even the most valuable papers elicited comparatively little discussion. Notwithstanding this, the phono-

graphic report is by no means the least interesting portion of the volume; on the contrary, it contains numerous valuable facts and suggestions.

Nearly all the Committee reports are filled with practical and scientific information, and the papers written in answer to queries, as well as the volunteer essays, are mostly of more than mere ephemerous value. The book contains several papers from the pen of Prof. Procter—his last contributions to pharmaceutical knowledge.

Such a creditable volume, it is to be hoped, will be an incentive to all members of this national association to aid in making the next one of equal, if not greater value.

Year Book of Pharmacy, comprising abstracts of papers relating to pharmacy, materia medica and chemistry, contributed to British and foreign journals, from July 1, 1872, to June 30, 1873, with the transactions of the British Pharmaceutical Conference at the Tenth Annual Meeting, held at Bradford, September, 1873. London: J. & A. Churchill. 8vo, pp. 588.

On page 523 of the last volume, we have given an account of the Transactions of the British Pharmaceutical Conference, at which a number of interesting papers were read, several of which have been reproduced in this Journal, and others we hope to bring to the notice of our readers, if not entire, at least in the form of an abstract. Many of the papers are followed by very interesting discussions, to condense which is next to impossible.

The principal feature of the volume before us is the "Year Book," which occupies nearly 350 pages, and consists of copious abstracts of the more important papers relating to pharmacy, and contributed to or published in pharmaceutical and other journals; the most important papers have been reproduced *in extenso*. There is, we think, a great improvement in the arrangement of the vast amount of material, as compared with former issues; in fact it leaves scarcely anything to be desired.

The "getting up" of the volume is creditable alike to the Conference and to the Editors.

Proceedings of the Vermont Pharmaceutical Association at the Fourth Annual Meeting held at Burlington, September, 1873. Rutland: Globe Paper Co., Printers, 1874. 8vo, pp. 57.

In our last volume, on page 523, we have reported the meeting, of which the pamphlet before us gives a more complete account. It is a live body, the pharmaceutical association from the Green Mountain State, as is amply testified by the published Proceedings. The addresses and reports presented by the officers and committees have always been to the point, and whatever may appear strange is easily rectified by the free discussion to which expressed opinions are subjected. A case in point, in this pamphlet, is the excellent response of Mr. Rider, of Middlebury, to a paper advocating the use of English instead of Latin for labels and prescriptions, and we expect that another paper, which has all the appearances of a panegyric on patent medicines, will receive a similar good reply at the next annual meeting; it elicited much discussion, as we are informed by the minutes.

We hope that this Association may not be wanting in the council of the Na-

tional Association, in September next; more youthful bodies have presented themselves, and were pleased with their reception.

Tenth Annual Report of the Alumni Association, with the exercises of the 53d commencement of the Philadelphia College of Pharmacy, and the Prospectus for the ensuing course of Lectures. Philadelphia: 1874. 8vo, pp. 76.

At the last annual meeting a change was made in the admission to membership; every graduate of the College becomes a member of the Alumni Association by virtue of the Diploma granted by the College, and without paying any fee. Certificates of membership are issued and the printed annual reports are sent to those members only who pay the sum of $5, no further payment being required. This money is used for printing the annual reports, the one before us containing the minutes of the Association and its Executive Board, reports of the different officers and committees, the commencement and the reception of the graduating class, the latter having for the first time been graced by the presence of ladies—and the following addresses: Introductory to the last Course of Instruction, A Historical Review, by Mr. W. C. Bakes; and an eulogy on the late Professor Procter, by Mr. Jos. P. Remington.

A Manual of Botany: including the Structure, Functions, Classification, Properties and Uses of Plants. By Robert Bentley, F. L. S., M. R. C. S. Eng., Professor of Botany, etc. Third edition. London: J. & A. Churchill. 1873. 12mo. pp. 815.

An excellent work, which is particularly adapted to the pharmaceutical and medical student, and well calculated to serve as an introduction to the study of materia medica, since the plants which are useful either medicinally or economically, are treated of somewhat in detail, and many references descriptive of their use have been attached. The extensive material is well and practically arranged, and its adaptation and usefulness for the beginner and more advanced student is conclusively proven by its extensive sale, which rendered this revised edition necessary, only three years after the publication of the second edition. The work is embellished with 1138 wood-cuts illustrative of the matter treated.

Proceedings of the American Academy of Arts and Sciences, Vol. viii. From May, 1866 to May, 1873. Boston and Cambridge: Welch, Bigelow & Co., 1873. 8vo, 680 pages.

A handsome volume, containing many valuable essays and memoirs upon scientific subjects. If we should wish for any improvement, it is the addition of a table of contents, which, we think, is not rendered unnecessary even by such a copious index as the one appended to this volume.

Half Yearly Compendium of Medical Science. Edited by S. W. Butler, M. D., and D. G. Brinton. M. D. Part xiii, January, 1874. Philadelphia: Office of the Medical and Surgical Reporter. 8vo, pp. 298. $3 per year.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part lxviii, January, 1874. American edition. New York: W. A. Townsend. 8vo, pp. 324. Price, $2·50 a year.

Half-Yearly Abstract of the Medical Sciences. Edited by William Domett Stone, M. D. Vol. lviii. January, 1873. Philadelphia: Henry C. Lea. 8vo, pp. 296. Price, $2 50 a year.

The editor of the last named work, which has been published for a period of 29 years, announces that it will be discontinued: but the American publisher has made arrangements for supplying a semi annual digest of the improvements and discoveries in the medical sciences.

Changes of Temperature and Pulse in Yellow Fever. By Joseph Jones, M.D., Professor of Chemistry and Clinical Medicine University of Louisiana. Louisville, 1873.

A reprint from the *American Practioner.* The results of the author's investigations are summed up in the following concluding sentence of his essay.

"It is evident, therefore, that the cause of the rapid rise and sudden decline of the temperature in yellow fever must be sought chiefly in the changes induced by the febrile poison in the *blood*, and in those organs, as the *heart, liver and kidneys*, upon which the circulation and integrity of the blood depends."

OBITUARY.

Thomas Newborn Robert Morson was born at Stratford le-Bow, London, and having lost his parents while yet young, and being then left without a guardian or family connections, was thrown to a great extent upon his own resources; but he overcame all difficulties of his early life, became the founder of a widely known and well reputed business, and the personal friend of many of the leading scientists and artists of his time.

At the age of fourteen he was apprenticed to an apothecary in Fleet Market, (now Farringdon Street), and went afterwards to Paris, to the establishment of M Planche, where he lived for several years. On his return to England, he established himself in business in the house where he had been apprenticed; and here the sulphates of quinia and of morphia were for the first time manufactured in England, and sold to the wholesale trade at 8 shillings a drachm for quinia, and 18 shillings for the same weight of morphia salt. He subsequently moved to Southampton Row and afterwards built a laboratory in Hornsey Road for the manufacture of chemicals, &c.

He was one of the founders, for many years a member of the Council, four years Vice-President, and three years President of the Pharmaceutical Society of Great Britain, from the Council of which he retired in 1870. He took an active part in the publication of the *Pharmaceutical Journal*, and articles prepared for publication were frequently seasoned, to use an expression of Mr. Bell's, with the "Attic salt" from Southampton Row.

Mr. Morson was a man of enlarged mind and cultivated intellect and his house was a place of resort for men of genius who, on Sunday evenings, found ample scope for the discussion of their favorite topics in his company.

In the early part of January last, he had an attack of paralysis, from which he did not recover; he died at his residence on Queen Street, Bloomsbury, on he third day of March, in the seventy-fifth year of his age.

THE

AMERICAN JOURNAL OF PHARMACY.

MAY, 1874.

ON LAWS INTENDED TO REGULATE THE PRACTICE OF PHARMACY IN THE UNITED STATES OF AMERICA.

By Charles C. Fredigke.

When we examine the efforts made thus far to regulate the business of selling drugs in our country, we find that they emanate from a desire to raise that business to the dignity of a profession. It is worthy of note, that these efforts, instead of being brought forward by the people, in every instance proceed from those engaged in the business. They make the protection of the people a prime reason, culminating in graduation and registration; but the laws enacted in some of the States fail entirely of their intention and purpose, besides incumbering the business and imposing expenses on those engaged in it. They run counter in every instance to the civil rights of the citizen. They must do this of necessity so long as the Constitution of the United States of America is not amended so as to bring the practice of pharmacy within the concern of the Government at large. Under the present conditions, no government of any one of the States of this Union possesses the right to regulate the practice of pharmacy, except in so far as the welfare of the Commonwealth demands, which depends upon its polity, that is, its constitution—the fundamental framework upon which the various departments of a government are based; therefore the State can do this only in such a manner as not to interfere in the free pursuit of any avocation an individual may prefer, whether qualified or not. This is a fundamental right possessed by every citizen, and secured by the Constitution of the United States of America; it is as broad as the Union of these States, being one of those which made our country what it is. Nobody can be called upon here to show evidence how he came about his profession. His ability to practise it is the only evidence required. The question of qualification, the degree of ability, is no concern of the

Government at all, at least it has not been thus far, for this simple reason, that as soon as the Government requires qualification it must establish and maintain a governmental standard; it cannot acknowledge as such, by any process of circumvention, the private standard of an incorporated college, managed by private individuals and sustained by private means.

The State can, however, enforce laws to regulate the promiscuous huckstering of drugs, the manufacture and sale of quack nostrums, or the adulteration of articles of consumption, on the ground of public policy, that is to ensure the safety of the citizen, and on this only. It can make these laws so stringent as to practically stop the present huckstering of drugs and prevent the people from "doctoring" themselves. But professional qualification for the selling of such drugs, or the manufacturing of such quack nostrums, it cannot demand, much less enforce, for the reasons stated.

It will be seen then, that pharmacy, meaning a systematic knowledge of the art of preserving, preparing and compounding substances for the purposes of medicine, is not necessary in the business of selling drugs, is not required of the "druggist," pharmacy being no concern of the government at large. It exists in individual instances, but forming exceptions, as compared with the great majority of "dealers in drugs," is not worthy of consideration here, because we speak here of the business at large, in general, as it exists *de facto* in our country.

In order to prove and show more clearly what has been maintained, we will give an example:

"A bill for an act to regulate the practice of pharmacy and sale of poisons and to prevent adulterations of drugs and medicinal preparations in the State of Illinois," was introduced by Mr. Lee, ordered to a first reading, referred to Committee on Judiciary, and ordered printed March the 13th, 1874, at the last session of the General Assembly of the State of Illinois. This bill for an act is only, with a few additions and omissions, a counterfeit in imitation of the one at present in force as a law in Kentucky, that is, it is tolerated in that State, existing as it were by permission. We will assume this bill to be a law in Illinois, and what is said of it on the strength of this assumption applies equally to what is a fact in the State of Kentucky.

The bill consists of only one section and 13 paragraphs, including the first section and two schedules designated A and B.

Section one makes it unlawful for any person, unless a registered pharmacist, or a registered assistant in pharmacy, to retail, compound or dispense medicines or poisons.

§ 2. A person, in order to be registered, must be either a graduate, a practicing pharmacist or a practicing assistant in pharmacy.

§ 3, defines these several persons.

§ 4, creates a Board of Pharmacy, 12 candidates for membership of which office are proposed by the incorporated colleges of this State, from among whom the Governor appoints three to constitute said Board. Its duties are: to examine candidates, to supervise registration and to cause the prosecution of all persons violating its provisions.

§ 8. Any person not a registered pharmacist, keeping open shop, becomes guilty of a misdemeanor and liable to a penalty of no less than 50 nor more than 200 dollars, provided, however, that in rural districts where there is no registered pharmacist within two miles, it shall be lawful for retail dealers (in or of what is not mentioned) to procure licenses from the Board of Pharmacy, at a fee of one dollar, to sell the usual medicines and poisons.

It further provides, that nothing contained in this act shall apply to, or in any manner whatever interfere with, the business of a wholesale dealer in drugs and chemicals, nor with the making and dealing in proprietary remedies, popularly called patent medicines.

What has been quoted is the sum and substance, the essence by means of which this bill is going to meet the wants of the State and the profession. In its practical points it closely resembles all other laws thus far brought forward in any of the States. We will see now how it will operate as a law: After we have graduated, been examined and registered, and paid all the various licenses and fees, a retail dealer in a rural district, who may be dealing in hardware, dry goods or groceries, pays one dollar and then can sell any medicines or poisons, which ever he pleases! A wholesale dealer can sell and retail all the various drugs, medicines and poisons, which we are prohibited from selling, without paying anything whatever, without being registered and examined! After we have been examined and registered, and paid all the various licenses and fees, this law especially provides against interference with the manufacturer and dealer in quack-nostrums—he may go on swimmingly!

Where the much talked of protection to the people, the protection

to ourselves and the progress to pharmacy comes in, is difficult to see. But that is not all; for if that Board of Pharmacy gets judgment against a poor "dealer in drugs," in a police court or other retail court of justice, he will have to close his shop and sell his business. In this free country of ours, poverty ought not to be a bar to justice, for if that dealer possesses the means he will appeal the case to the Supreme Court of Illinois; or if a Kentuckian, to that of his State, and receiving an adverse decision there, he appeals it to the Supreme Court of the United States, where he will obtain a judgment that would stagger any Board of Pharmacy! It will then be his turn to bring an action at law against that Board of Pharmacy and those incorporated colleges for damages and costs caused him by their unconstitutional interference with his civil rights, and that Board would certainly ask, what are we going to do about it? They might peddle licenses for selling drugs and poisons to all the dealers in hardware, dry goods and groceries in the rural districts of Illinois, but that is out of the question, it is unconstitutional. That their power of registration and examination is practically equivalent to *nihil*, needs not to be mentioned.

All that any one of the States can do, is to enforce a most comprehensive law prohibiting the promiscuous sale of drugs, regulate the sale of poisons and the manufacture and sale of quack nostrums, popularly called patent medicines; it may also comprise the adulteration of drugs but in doing so must entirely abstract from professional qualification. Such an act might also include all those articles which under any circumstances or by accidents may become injurious or dangerous, on the ground, as has been said before, of public policy and for no other reasons.

If a State would create, maintain and enforce a system of medical and pharmaceutical supervision, there might be such a thing as pharmacy, but then it would have to establish a pharmacopœia, an official formulary, published according to its orders, containing all the medical and pharmacal preparations, which ought and can be kept on hand by the pharmacist. In securing the public health against the dangers of empiricism and the deceiving seductions of the charlatans, it would be at the same time a reliable guide to the practitioner, and to the administration a means to assure order and supervision. But the Pharmacopœia of the United States of America lacks all these essential particulars; the majority of druggists do not spend the cost

for the paper on which it is printed, know nothing definite about it, may or may not keep on hand whatever they please, and may or may not graduate the quality and strength of their drugs and preparations so as to stand in a suitable relation to the strength of their pockets ; everything is left to the progressive ideas of the individual, and nobody can compel him to care at all about it. Pharmacy might be made more remunerative, and at the same time considerably elevated in the estimation of the people, by a close working union or national organization of the druggists of the United States of America, by such means for instance, as the establishment of a uniform tariff of prices in the prescription as well as retail trade, agreed to and conformed to by every member, said tariff to be altered monthly in accordance with the state of the market; but such an association depending on individual consent, is almost utopian, because it requires a certain degree of honesty, foreign to the spirit of unscrupulous competition possessed by the majority, which does not care to bind itself by rules, even if we succeed to convince it, by figuring them out in dollars and cents.

We are, therefore, no nearer to pharmacy than we were forty years ago, and the question will recur again and again : What are we going to do about it ?

Chicago, April, 1874.

SOLUTION OF THE CITRATE OF MAGNESIUM.

By Charles G. Polk, M. D.

I find in the Report of the Committee of the American Pharmaceutical Association a very pointed criticism, by Mr. Diehl, of Louisville, on a formula (published by me a short time before the publication of the last edition of the Pharmacopœia) in the *Druggists' Circular*, for a cheap citrate of magnesium. At the time of publication, the extremely high price of citric acid and the competition of trade, had really created a demand for a formula for an article that would answer the purpose, and yet be within the price the large mass of people could afford to pay. To meet that demand, the objectionable article was furnished.

The practical point at issue is whether one hundred and twenty grains of carbonate of magnesium, decomposed by two hundred and forty grains of citric acid, is sufficiently active to meet the wishes of those who take the citrate of magnesium.

My experience is, that most of the persons who take the solution are satisfied with one of that strength; and, really, nine times out of ten the customer is better off than he would have been had he taken a more powerful cathartic. It is a universal law of the animal economy that over-excitation is attended with a corresponding debility. Super-catharsis is almost ever attended with subsequent inaction of the intestinal canal and constipation, the only exception to this rule being those cases in which a degree of congestion is induced sufficient to maintain considerable serous and biliary secretion. The injury inflicted by the patent pills of Jayne, Morrison, etc., is very great; the physician, who alone has an intelligent view of these consequences, can only deplore, without the ability to correct or even modify, this evil. He can, however, when publishing a formula for a commercial article which the community demand and will have, give one so modified as to open the bowels when constipated in a gentle yet effective manner, without the corresponding debility the old officinal formula would induce on persons of susceptible bowels. And really this cathartic evil, like many others society must encounter, must be endured, and, if possible, modified, without a chance of being escaped. Super-catharsis is a weak point in regular practice, where homœopathy gains decided advantage; in fact, the leading men of the regular profession are now realizing this, and while shunning the charybdis on which the Hahnemannian is so often wrecked, also steer safe from the scylla on which the allopath was formerly unfortunate. While I do not denounce *in toto* active purgation when the derivative effect is required according to the direction of a physician, I cannot too strongly deprecate the use of active medicines in the hands of ignorant and uneducated persons. I am aware that it will be objected that this weak citrate will not move the bowels of some persons; I admit that—but are the masses to pay ten cents extra for a bottle in order to meet exceptional cases, the few with obdurate bowels? I cannot see the necessity of it. I know a drug store in this city that sells on an average thirty bottles a week made by my formula, and I am informed it is very seldom that a complaint is made. Mr. Diehl states that my formula is but half the officinal strength; if he intends the present officinal formula, he says 240 is but one-half of four hundred—a calculation somewhat at variance with my arithmetic. In filling physicians' prescriptions, the officinal directions should never be deviated from, unless specified by the prescriber; and as we have now

an excellent officinal formula, the officinal article should alone be sold under the officinal name, and if a modification from it be necessary, the fact should be stated on the label.

It should, however, be recollected that the Pharmacopœia is designed to meet the wants of the medical and pharmaceutical professions, and not to direct preparations for popular use, although it is far better to conform in every respect to its requirements, with specific directions for its use accompanying each bottle or package. The solution of tartrate of sodium would make a good cathartic for popular use, and, if once introduced and sold at its relative cost, no doubt it would, in a larger measure, supersede the more elegant and costly citrate. Phosphate of sodium, dissolved in eight times its weight of water and flavored with an aromatic syrup, forms a preparation therapeutically superior to either the magnesium citrate or the sodic tartrate, and but very little more disagreeable, acting as a stimulant to the functions of the chylopoetic viscera, and exciting the biliary secretion. The following is a good formula :

℞.	Sodii Phosph., . . .	℥i	
	Aquæ, ...	℥viii	
	Syrup. Acidi Citrici, . . .	℥iss.	M.

Take at once.

Citrate of sodium could also be used as a pleasant cathartic. A solution is quite permanent, and is equally as agreeable as the magnesium citrate, but it presents no inducement in point of economy, and consequently offers no advantages that especially recommend it to our consideration over the present officinal formula for the latter.

In conclusion, I will add, the weaker solution by me furnished to the *Druggist's Circular* answers very well as a mild cathartic, as hundreds of cases to whom I had prescribed it evince, and as several druggists, were they disposed, could verify ; but that it was not designed to take the place of the officinal one is indicated by the accompanying formula for a solution of greater strength, recommended as its superior, and which furnishes a more agreeable preparation than I have ever seen furnished by any other formula, but the deficiency in acid impairs its permanence. Stability, however, has never been attained by any formula yet adopted ; previous to the publication of the Pharmacopœia, I was working out a formula by which the magnesium solution would be held more entirely in solution by the

addition of a drachm of potassic citrate to each bottle, and I had quite well succeeded.

I cannot deprecate too severely the sale of Epsom salt, disguised and called "Citrate of Magnesia," although it is a "trick of trade" entirely too common everywhere—even our own city, the cradle of American pharmacy, is not exempt.

Philadelphia, April, 1874.

NOTE BY THE EDITOR.—We do *not* agree with Dr. Polk that the practical point at issue in the above question is whether the citrate of magnesium of the strength given in his formula is sufficiently active for most persons; but whether an article, containing only three-fifths (which is not much over one-half) of the officinal quantity, should be sold under the officinal name. The fact that it meets with a satisfactory sale at one Philadelphia drug store does not remove the objection; but we should like to inquire about this apothecary, who adheres so conscientiously to the Pharmacopœia that he offers to his customers an article forty per cent. less in strength than the officinal, whether he requires of them also (bottle excluded) forty per cent. less money than his neighbor must demand who follows the officinal directions? Dr. Polk's excellent arguments are for the Pharmacopœia Committee to determine, whether the strength of the solution should be reduced; but not for the apothecary to decide this question, even though recommended by a score of physicians. If twelve ounces of the officinal solution is too large a dose, it would be better to introduce again bottles of one-half or two-thirds of that size.

We have heard it repeatedly charged that Epsom salt is *frequently* sold as citrate of magnesium, yet ever since the introduction of this solution in this country we remember but *one* positive proof, and that was furnished in a paper by Prof. G. F. H. Markoe, published in the Proceedings of the American Pharmaceutical Association, 1871, p. 532—538.

NOTE ON SULPHURIC ACID, U. S. P.

By W. H. Pile, M. D.

Read at the Pharmaceutical Meeting, April 21st.

This acid, according to the present and previous Pharmacopœias, should be of specific gravity 1·843. As remarked by Dr. Squibb several years ago and repeated at the late meeting of the American

Pharmaceutical Association, it is impossible to procure sulphuric acid of this density. Upon actual trial with recently made acid, none was found to be over 1·835 at 60° F. The question has arisen, why give the officinal gravity of an acid, which druggists cannot make for themselves, at a higher density than the manufacturing chemists can furnish?

I suggest as a reason for this, that the manufacturers of sulphuric acid always advertise and sell their acid as being of a standard density of 66° B., and the framers of the Pharmacopœia, knowing this to be so, gave the corresponding specific gravity at 1·843, that being the usual number given in many chemical works as equivalent to 66° B. At any rate I am quite certain that if the specific gravity of the acid, so called 66°, had been experimentally taken it would have proved to be only 1·835. It is just here that a source of trouble arises. Any one upon examination of the tables appended to various chemical works, will be struck with the discrepancy which occurs in giving the specific gravity of Beaumé's hydrometer—England, France, Germany, each have a different scale. In this state of uncertainty one of our fellow-members, Wm. H. Pemberton, in 1851 selected a scale on this very account, namely, that the strongest sulphuric acid which manufacturers could readily make had a gravity of not over 1·835; calling this gravity 66°B., all the remaining degrees were readily calculated. From this scale, which will be found in the U. S. Dispensatory, I have always graduated my hydrometers, and have for 23 years and over supplied nearly all the acid works of our country, thus fixing the density of sulphuric acid at 66° B., equal to 1·835 specific gravity, and which density should certainly be that of the officinal sulphuric acid.

A PROPOSITION TO ABANDON THE PRESENT FORM OF HYDROCYANIC ACID AS A MEDICINE.

By G. A. Zwick.

In the February number, page 69, of the *American Journal of Pharmacy*, a series of examinations are reported on the strength of hydrocyanic acid as met with in commerce. The results of Mr. Towerzey's experiments prove what always has been surmised; in fact any one dispensing hydrocyanic acid must have observed that the acid becomes steadily weaker at each successive occasion to use it, even though not actually decomposed.

Of all the samples tested not one proved of standard strength; even No. 1. from a first class house, was below two per cent. This failing should be considered, in connection with the uncertainty of the drop-dose, in this case a matter of the utmost importance, and too often lost sight of. The vials in which hydrocyanic acid usually comes have thick necks and often no lip at all, and are about as awkward for dropping as they could be made; this reminds of a label which I could never comprehend clearly; it reads: "Hydrocyanic acid, minimum dose, one drop." How a minimum dose could be limited, considering the infinitesimals of Homœopathy, can scarcely be imagined.

Would it not be preferable to state the maximum dose, or, if this be not desirable, call it the *dilute* hydrocyanic acid of the U. S. P., or say simply that the contents are the two per cent. acid. But if all these objection had been removed, and the most scrupulous accuracy observed by the manufacturer, the most essential point, *i. e.*, the stability of the preparation, is not assured, nor is it even claimed by any of the modes of preparation or preservation; there is then but one alternative left, which is, in fact, pointed out by the Dispensatory. It is noted that the more concentrated the hydrocyanic acid, the more it is inclined to chemical changes. Here then would be a way out of this dilemma, viz., to exhibit this medicine in a more dilute form. To do this and not multiply preparations would be very feasible, and I should think very satisfactory to physicians. This course has been adopted in the latest German Pharmacopœia (*vide* Deutsche Reichs Pharmacopœ) in which hydrocyanic acid, as such, has been dismissed, and the "Aqua amygdalarum amararum concentratum" directed to contain one-tenth of one per cent. of anhydrous hydrocyanic acid. This being then just one-twentieth the strength of our officinal dilute two per cent. acid, a proportion at once convenient and admitting of positive measurement, one scruple contains one minim of our present officinal acid, and in this condition it is yet sufficiently strong for all practical purposes. It may be contended that bitter almond water is also prone to change, which to some extent is true, but if kept in a dark bottle and in a dark place it will certainly keep for six months, and I know of one sample that retained its full strength for one year.

Our present bitter almond water made with the essential oil, as well as the hydrocyanic acid, would then be displaced by a valuable and reliable preparation, for if the oil of bitter almonds possess any medicinal virtue, the carbonate of magnesium will be pretty certain to remove it.

By referring to page 204 of the April number, I find a plan for keeping hydrocyanic acid, which need only be tried to be condemned: mercury at one end, with vulcanized rubber at the other, and the elements of ammonia in the middle, will require a very short time to develop a fine odor of hydro-sulphuret of ammonia. This was proven to me some years ago, a Boston firm having put this acid up in blue one ounce bottles with vulcanized rubber stoppers. The style was splendid, but the contents of the bottle would never be mistaken for hydrocyanic acid.

Covington, Ky., April 15, 1874.

NOTES ON SUGAR-COATED QUINIA PILLS.

By A. B. Lyons, M. D., Detroit, Mich.

At the request of a physician I recently made an examination of some samples of sugar-coated quinia pills, which are offered for sale in this city. The principal objects sought in the investigation were three, viz: 1st, to ascertain whether the pills contained the full amount of quinia claimed on the labels. 2d, to determine to what extent other alkaloids of bark are substituted for quinia in their manufacture. 3d, to arrive at some simple plan for estimating approximately the quantity of quinia they contain.

The pills examined were from five prominent manufacturing houses, which are designated in this paper simply by numbers. The results as tabulated below, show that such an investigation was not uncalled-for. Physicians who prescribe quinia in the form of sugar-coated pills can no longer wonder at the uncertainty of the effects obtained therefrom.

The method pursued in the research was a simple one. The pills were digested in a little water, acidulated with hydrochloric acid, until completely dissolved or disintegrated. Caustic potash was then added in excess, and the mixture was repeatedly shaken with ether to dissolve out the precipitated alkaloids. The residue from the evaporation of this ethereal solution, after drying in a hot air-bath, was accurately weighed, and thus the total amount of alkaloid soluble in ether was determined.

If the quinine were tolerably pure, ether would extract the alkaloid perfectly, and the solution would exhibit no tendency to crystallize, and would leave, on evaporation, an easily fusible residue of a gummy

or resinous appearance. Cinchonia, being nearly insoluble in ether, would remain suspended in the aqueous solution. Quinidia and cinchonidia would be dissolved only with difficulty by the ether, separating from the solution on slow evaporation, or even without evaporation, in distinct crystals.

Judged by the behavior of the ethereal solution, samples 1 and 2 were tolerably free from admixture of the cheaper alkaloids, a trifling amount of cinchonia alone showing itself. In No. 3, a large quantity of ether was required to dissolve the alkaloid, which was in part thrown down during the evaporation as an amorphous precipitate. Its characters did not in fact correspond exactly with those of any of the common bark alkaloids, but were, perhaps, such as might be exhibited by quinia after the action of excessive heat. No. 4 contained no alkaloid except quinia. No. 5 contained a very large proportion of the less soluble alkaloids. The ethereal solution crystallized freely, even without evaporation. The pills themselves were of a dark color, and, even after extraction with ether, the alkaloids yielded, on treatment with dilute sulphuric acid, a strongly colored solution. Evidently the "quinine" employed was an extremely crude article. These pills also, alone out of the five samples examined, contained an excess of acid.

In a second series of experiments, made by way of confirming the results already obtained, the amount of quinia was estimated from the sulphuric acid contained in the pills. Since sulphuric acid is easily estimated by a volumetric process, this method might be employed by those who have not the apyliances for making gravimetric analyses. (Ten grains of quinia sulphate requires for precipitation 2·814 grs. of barium chloride.) For obvious reasons, however, this plan cannot be recommended as affording by itself any reliable information in regard to the amount of quinine present.

The sparing solubility of the neutral sulphate of quinia, and the facility with which it crystallizes from a solution in hot water, suggests a simple method of determining whether the pills contain the full amount of quinine claimed by the label. If two grains of quinine be dissolved in six fluidrachms of hot water, crystals form sparingly in the fluid within a few hours after cooling. With a smaller quantity of water the crystallization is, of course, more rapid and abundant. I found that two grain pills from samples 1 and 2 yielded crystals when dissolved in five and a half fluidrachms of water. No. 3 crystallized

only sparingly from a solution in one fluidrachm, and that in short massive crystals, totally unlike the delicate fibres and needles of genuine quinia. No. 4 crystallized very sparingly from three fluidrachms. No. 5 from two and a half, after the excess of acid had been carefully neutralized with dilute water of ammonia.

It will be seen, by inspecting the table, that these results harmonize, except in the case of No. 3, with those obtained by actual analysis. I can hardly think that anything likely to be used as an excipient can interfere with the success of this test, which is moreover so simple that it can be applied by those who make no pretensions to skill in chemical manipulation. The test may be applied practically thus: Dissolve a two grain pill in a fluidrachm of water, by boiling in a test tube. On cooling, the fluid should set into a dense network of fibrous crystals. Add a fluidrachm of water, or a larger quantity, if the first crystallization has been satisfactory, and heat till the crystals redissolve. In this way proceed until crystals form in the solution only sparingly after cooling. The volume of fluid, in drachms, multiplied by 100, and divided by six, will give now, approximately, the percentage amount of true quinine in the pill.

The annexed table exhibits the results of my experiments, and requires, perhaps, no further explanation or comment:

	Gross weight of 2 gr. pill.	Alkaloids soluble in ether, from five 2gr. pills.	Sulphate of quinia from five 2gr. pills.	One 2gr. pill crystallizes from water.
No. 1	4·8 grs.	7·15 grs.	9·55 grs.	5.5 drachms.
No. 2	4·7 "	7.1 "	9·5 "	5·5 "
No. 3	3·8 "	5·55 "	7·4 "	1· "
No. 4	3·7 "	4·65 "	6·2 "	3· "
No. 5	4· "	5.7 "	4·3 "	2·5 "

HELENIUM AUTUMNALE.

By Francis J. Koch, G. P.

From an Inaugural Essay.

This plant, belonging to the natural order Compositæ, is a perennial plant, indigenous to this country, growing more abundantly in the

Southern and Southwestern States. It has a very bitter taste, and is recommended by some in intermittent fever.

PROCESS PURSUED IN THE ANALYSIS OF THE PLANT.

Treatment with Ether.—A small quantity of the air dry plant was pulverized moderately fine, and macerated with stronger ether for four days; at the expiration of this time the temperature was raised to +110° F. for a short time, and then the substance was allowed to macerate for two days longer at the former temperature. The whole was then transferred to a percolator, and, after the liquid portion had run through, the dregs were entirely exhausted with stronger ether. The ethereal solution, which was of a dark-green color, with a blood-red hue in reflected light, had an acid reaction and a very bitter taste. It was allowed to evaporate spontaneously, lastly assisted by a gentle heat over a water bath. A small quantity of distilled water was added, and the heat continued until the whole was entirely free from ethereal and alcoholic odor, and then allowed to cool. The supernatant liquid was poured off, and the undissolved resinous substance repeatedly washed with small quantities of distilled water. The liquid and washings were concentrated to about one-third their bulk and set aside to clear.

The resinous substance undissolved by the water was then freed from adhering moisture by a gentle heat over a water bath. It had a dark-green color, a soft consistence and a bitter taste. (The bitter taste was subsequently found to be due to the insufficient exhaustion of the ethereal extract with water, the bitter principle being entirely soluble in water.) It was then warmed with a small quantity of 70 per cent. alcohol, and allowed to digest; the dissolved portion was then poured off, the residue washed repeatedly with 70 per cent. alcohol; the washings and solution evaporated to dryness left a resinous substance, of a light-brown color and a bitter taste, thereby proving the bitter principle to be soluble also in alcohol. The following solvents were applied to the resinous substance obtained with the 70 per cent. alcohol: H_2SO_4 dissolved it entirely, the solution being light-brown; on diluting with water it was changed to a beautiful rose color, and on further dilution the color disappeared with the production of a gray flocculent precipitate. Solution of KHO dissolved it, the hot solution more readily. NH_4HO and HNO_3 dissolved it partially. In HCl and CS_2 it was insoluble. In chloroform and benzin it was only slightly soluble.

A small quantity of the resinous substance was next subjected to the test for a glucoside. It was heated for fifteen minutes with diluted H_2SO_4 (one part of acid to ten parts of water), then rendered alkaline by the addition of solution of NaHO, and a few drops of alkaline solution of $CuSO_4$ added, and the whole heated to the boiling point, whereby a precipitate of Cu_2O was formed, proving the presence of glucose.

The substance undissolved by the 70 per cent. alcohol was next treated with hot 90 per cent. alcohol, which dissolved it almost entirely, leaving only slight traces of fat. The alcohol, upon cooling, deposited all it had taken up, which consisted of wax, chlorophyll, and other coloring matter; the deposit, after thoroughly washing with alcohol of the same strength, and then drying, was of a soft consistence, having a grayish-green color and a bland taste.

The aqueous solution of the ethereal extract, which had been set aside to clear, was separated from a slight resinous deposit, concentrated, filtered and set aside to crystallize. At the expiration of two days, no crystals having been formed in the liquid during this time, it was treated with the following reagents: NH_4HO produced no change except deepening the color of the liquid. NH_4HCO_3 had the same effect. $CaCl_2$ produced no change. Fe_2Cl_6 produced a black coloration. Gelatin caused a turbidity. Neither $Pb2C_2H_3O_2$ nor tannic acid effected a change in the liquid.

Treatment with Alcohol.—The dregs, after having been exhausted with stronger ether, were freed from all traces of ether by exposure to the air, and then digested in 95 per cent. alcohol for three days, at a temperature of $+150°$ F., and then allowed to macerate for one day longer at an ordinary temperature, the whole thrown into a percolator, and the dregs thoroughly exhausted with alcohol of the same strength; the washings added to the percolate, and the whole evaporated over a water bath. The resulting extract was treated with a small quantity of distilled water at a gentle heat, the whole allowed to cool, after which the solution was filtered off, the residue thoroughly washed with distilled water, the washings added to the solution, and the whole concentrated to one-half its bulk, and set aside in a cool place. The liquid was slightly bitter, having a faint acid reaction and a light-brown color.

The portion of the alcoholic extract insoluble in water was dried and again dissolved in alcohol, treated with animal charcoal, filtered and evaporated. The resulting resin was of a dark-brown color, and

entirely tasteless. It was soluble in CS_2, less soluble in chloroform, insoluble in oil of turpentine, benzin and HNO_3. The quantity obtained, being very small, allowed of no further experiments.

The aqueous solution of the alcoholic extract, which had been concentrated and set aside to crystallize, no crystals having been formed in two days, was subjected to the following reagents: NH_4HO, KHO and Na_2CO_3 deepened the color of the liquid, producing no further change. $CaCl_2$ produced a copious yellowish white precipitate, soluble in $HC_2H_3O_2$, rendering the presence of H_3PO_4 probable. Fe_2Cl_6 produced a black coloration and a slight black precipitate; the black color did not disappear on the application of heat. Gelatin produced a turbidity, thereby confirming the presence of tannic acid, although in a small proportion, as no astringency was perceptible in the plant, nor in any of the extracts thus far obtained from it. $Pb2C_2H_3O_2$ produced a dense precipitate, entirely soluble in $HC_2H_3O_2$, thereby proving the absence of H_3PO_4, the presence of which had been rendered probable by the precipitate, soluble in $HC_2H_3O_2$, which had been obtained on the addition of $CaCl_2$ to the solution.

On application of Trommer's test for glucose, a precipitate of Cu_2O was formed. To convince myself in another manner of the presence of glucose, a decoction was made from a small quantity of the herb, the decoction treated with $Pb2C_2H_3O_2$, the resulting lead compounds separated from the liquid by filtering, the excess of lead removed from the filtrate by H_2S and filtering, the excess of H_2S expelled by boiling and filtering; the resulting clear yellow filtrate was evaporated to a syrupy liquid, which had a decidedly sweet taste, and on further evaporation and heating it gave off the peculiar odor and possessed the taste of caramel.

The remainder of the aqueous solution of the alcoholic extract was then treated with $Pb2C_2H_3O_2$, the precipitate collected on a filter and washed; the filtrate and washings were neutralized with NH_4HO, whereby only a very slight turbidity was produced.

The $Pb2C_2H_3O_2$ precipitate was treated with boiling water and filtered, the filtrate concentrated to a small bulk, and allowed to stand in a cool place to crystallize. After standing twenty-four hours, a small quantity of crystals of malate of lead were obtained.

The portion of the $Pb2C_2H_3O_2$ precipitate, insoluble in boiling water, was dissolved in dilute $HC_2H_3O_2$, then neutralized with NH_4HO, whereby a precipitate was formed, which was washed, suspended in

alcohol, and treated with H_2S, filtered, and then evaporated, which left a yellowish coating, which, on solution and application of Fe_2Cl_6 and gelatin, proved to be tannic acid.

Treatment with Cold Water.—The substance, after having been exhausted with alcohol, was dried and then macerated with cold water, in a cool place, for six days, and strained, which yielded a turbid liquid of a light-brown color, tasteless, and neutral to litmus. On standing, a small quantity of inulin was deposited. The clear liquid was poured from the sediment, and heated to the boiling point, whereby a considerable amount of albumen was separated, which was filtered off, and the filtrate evaporated to one-half its bulk, after which the following reagents were applied:

NH_4HO and Na_2CO_3 deepened the color of the solution. Fe_2Cl_6 produced no change. $Pb2C_2H_3O_2$ produced a slight flocculent precipitate, soluble in $HC_2H_3O_2$, which was afterwards proven to be coloring matter. Trommer's test for glucose showed its absence in this solution.

Treatment with Boiling Water.—The substance, after having been exhausted with cold water, was next treated with boiling water for one hour, then strained and concentrated to a small bulk, and subjected to the following reagents:

NH_4HO, Na_2CO_3, KHO, $CaCl_2$, Fe_2Cl_6 and tannic acid produced no change in the liquid, except that the color was deepened by the alkalies. $Pb2C_2H_3O_2$ produced a copious brown precipitate.

The whole of the liquid was then treated with $Pb2C_2H_3O_2$, and the precipitate separated by a filter and washed. The filtrate and washings were neutralized with NH_4HO, producing a slight yellowish-white precipitate, which was filtered off and the filtrate treated with $Pb_2O2C_2H_3O_2$ without producing any further change.

The $Pb2C_2H_3O_2$ precipitate was then treated with boiling water, filtered, and the filtrate evaporated, which left a small crystalline residue, an organic acid in combination with lead, apparently malic acid.

The portion of the $Pb2C_2H_3O_2$ precipitate insoluble in boiling water was digested in diluted $HC_2H_3O_2$ and filtered, the filtrate treated with NH_4HO, which produced no precipitate, showing that nothing had been dissolved by the acid. The precipitate was then boiled with a solution of NaHO and filtered, the filtrate tested with solution of Ca2HO for oxalic acid, giving a negative result.

The slight yellowish-white precipitate, obtained by treating the filtrate resulting from the precipitation of the decoction by $Pb2C_2H_3O_2$, and filtering, was suspended in alcohol and treated with H_2S and filtered; after removing the excess of H_2S and evaporating, no residue was left. The original precipitate apparently consisted of gum in combination with lead, and which evidently did not pre-exist in the plant as gum, but as inulin, which, by boiling, was converted into gum.

A larger quantity of the herb was subjected to distillation with water, and yielded a perfectly clear and transparent distillate, neutral to test paper, tasteless, and possessing but a very faint odor, thereby proving the absence of volatile acids and bases, and the presence of a very minute quantity of volatile oil.

The decoction remaining in the still was of a dark-brown color, having a very bitter taste and an acid reaction. It was evaporated to a solid extract, over a water bath, and treated with alcohol, which took up the whole of the bitter principle, leaving a brown extract like mass, consisting of gum, fat, coloring matter, &c.

The alcoholic solution was evaporated to a solid extract, over a water bath, and a portion treated, in several small portions, with NH_4HO, KHO, Na_2CO_3 and $KHCO_3$, with a view of obtaining a crystallizable salt, but without success.

The remainder of the extract was boiled with diluted H_2SO_4 (one part of acid to ten parts of water) for fifteen minutes, the acid solution neutralized with $BaCO_3$, the $BaSO_4$ removed, and the clear liquid tested for glucose by Trommer's test, which produced the characteristic precipitate of Cu_2O. The portion left behind by the diluted acid was of a liver-brown color, pulverizable, yielding a light-brown powder, of an exceedingly bitter taste, producing violent irritation and sneezing when drawn up into the nostrils.

It is supposed by some that the plant possesses poisonous properties. Whether or not the bitter, amorphous substance which I obtained from the plant possesses such properties I did not undertake to determine.

From the results of the above experiments, it seems that the bitter principle is a glucoside, soluble in ether, alcohol and water, freely in the first two menstrua, and boiling water dissolving it more readily than cold water; and by application of diluted H_2SO_4, with heat, splitting up into glucose and an uncrystallizable, bitter amorphous substance, having an acid reaction. The herb contains also some

malic acid, traces of tannic acid, inulin, albumen, traces of fat and volatile oil, resin, chlorophyll, and other coloring matter.

A small quantity of the herb was incinerated, and found to contain sulphate, chloride and carbonate of iron, calcium, magnesium and potassium.

RESINA PODOPHYLLI.

By Frederick B. Power, G. P.

From an Inaugural Essay.

Eight troy ounces of powdered podophyllum were treated as per formula for resina podophylli, U. S. P., 1870, until the alcoholic percolate ceased to cause a precipitate when dropped into water, and passed perfectly colorless ; the residue contained in the percolator was dried and found to weigh seven troy ounces and two drachms, the amount of moisture in the powder having been previously ascertained and found to be 5 per cent., leaving the amount of soluble matter abstracted by the alcoholic menstruum about 4 per cent.

The precipitated resin was allowed to drain, and washed with successive portions of cold water until freed from acid, and the washings upon evaporation left no residue ; the yield of resin thus obtained after careful drying was two drachms or three per cent. ; it was of a light yellowish brown color, and presented a marked contrast with some of the commercial specimens examined. The percentage of resin seeming small, a larger quantity of selected rhizomes was operated upon, but the percentage in both instances was the same ; the rhizomes, however, had been previously deprived of the radicles, and it being known that these are at least quite as rich in resin, the operation might have led to different results had they not been detached.

The mother liquor remaining after the precipitation of the resin, together with the washings therefrom, was concentrated by evaporation, when a portion of resinous matter separated, which was found to be entirely soluble in alcohol, being precipitated by water ; but by

treatment with ether, was divided into two portions, soluble and insoluble, therein maintaining about the same degree of solubility as the precipitated resin. The exact amount of this substance was not ascertained, but must be at least ten per cent. of that originally obtained by precipitation. The portion of alcoholic resin insoluble in ether thus separated by the concentration of the mother liquor, was taken in doses of five grains, producing only a slight cathartic action, attended by no unpleasant effects, while the ethereal resin taken in the same amount proved to be an active emeto-cathartic, very violent in its action, producing vomiting and purging, attended with severe griping, sense of dryness in the throat and dilation of the pupils, the effects lasting for about twenty-four hours; the latter effect I have never seen recorded, and may possibly only be produced by an excessive dose; but it was plainly marked in this instance, affording conclusive evidence that the substance thus separated is identical with the precipitated resin, at the same time establishing the fact that *the so-called resin of podophyllum is not a true resin*, which term, as applied by the older chemists in its widest sense, distinguishes those substances insoluble in water, generally soluble in alcohol, for the most part uncrystallizable, and melting when warmed; it might with some degree of propriety be called a resinoid, from its resemblance to a resin, but this in turn is so vague in its meaning, that the nomenclature adopted by our Pharmacopœia may be more conveniently used until its true composition is more definitely determined.

The concentrated mother liquor when filtered was of a yellowish red color, possessing a slight bitter taste and strong acid reaction; no precipitate was produced by iodohydrargyrate of potassium, tannic acid, mercuric chloride or tincture of iodine, indicating the absence of any organic alkali; the statement of berberina having been separated from this liquid must have been applied with reference to the former officinal resin, precipitated without the agency of hydrochloric acid, as in the present process it was found to have been entirely precipitated.

The liquid, however, when quite dilute, frothed strongly upon agitation; the color was rendered much brighter upon the addition of alkalies. Ferric chloride colored it olive green, baryta water produced a dense precipitate, but it was not precipitated by a solution of gelatin; when mixed with anhydrous alcohol, a perfect solution was formed, which however did not froth; added to an alkaline solution

of cupric oxide, it became of a bluish green color, forming upon standing, a slight flocculent precipitate, which upon boiling turned to reddish brown. The liquid, when freed as much as possible of coloring matter by ether, was precipitated by barium hydrate, the precipitate collected and washed with a solution of the same, dissolved in a small portion of water and the barium removed by CO_2, the resulting solution upon evaporation possessed the peculiar odor of saponin, tending to confirm the statement of Professor Mayer as to the presence of this substance, to which is no doubt partially due the extremely irritating effect upon the eyes and skin, experienced by those engaged in the manufacture of the resin on a large scale.

The residue contained in the percolator, after exhaustion by alcohol, was macerated with cold water for five days, filtered and evaporated to the consistence of an extract, possessing a sweetish odor, in color and taste closely resembling the English extract of taraxacum. This was taken in doses of from ten to twenty grains, producing only slightly laxative but decided tonic effects. Although proving that the rhizome after exhaustion by alcohol is almost entirely destitute of cathartic properties, yet the extract thus obtained may, upon trial, merit some application.

This extract was again liquified and treated with purified animal charcoal, which nearly deprived it of color; the solution gave a dense precipitate upon the addition of alcohol, which, when separated, by treatment with ferric chloride and solution of borax, was found to consist principally of gum. The solution, after the removal of the gum, contained extractive matter with some sugar; the latter, after separation by ether, was indicated by Trommer's test, and upon evaporating the solution and heating the odor of caramel was evolved. The charcoal was then exhausted with boiling alcohol; this liquid, however, upon evaporation, left but a slight amorphous residue.

Upon the officinal resin, as previously obtained, sulphuric and hydrochloric acids produce no change of color in the cold; nitric acid colors it deep reddish brown; when heated with concentrated sulphuric acid it is partially dissolved, forming at first a yellowish solution, which soon changes to a deep blood red, and upon dilution with water, separates flocks of a brownish red color. The portion undissolved by the concentrated acid is dissolved by alcohol with the formation of the same blood red color. The resin, when boiled with diluted sulphuric acid, is also partially dissolved, forming a red solu-

tion, though more slowly, and the filtered liquid is not capable of reducing cupric oxide in alkaline solution.

The resin fuses at 220° F., which was ascertained by placing a portion upon the surface of mercury, with a thermometer immersed in the liquid, and applying a carefully regulated heat; when heated on platinum foil it melts to a brownish liquid, and upon increasing the heat, takes fire and burns with a bright sooty flame with considerable empyreuma, leaving light porous charcoal. Two grams of the resin were boiled with a fluidounce of water, imparting thereto a light yellow color, while the resin ran together, forming a soft brownish mass, becoming brittle on cooling. The liquid was filtered while hot, by means of an arrangement for hot filtration, it was transparent while hot, but became turbid upon cooling, and upon evaporation of the liquid, separated resinous flocks. Upon weighing the resin after this treatment it was found to have lost 0·03 grams. The ethereal resin yielded similar results.

The resin is entirely soluble in amylic and methylic alcohol, acetone, officinal solution of potassa, forming, when diluted, a bright yellow solution; it is also soluble in carbolic acid, with which it seems to combine, depositing, upon evaporation, reddish yellow crystals, but is insoluble in turpentine.

Supported by a series of experiments made with the alcoholic and ethereal portions of this resin, I can confirm the statements that have been previously made, that while the portion of resin insoluble in ether is not without some activity, the ethereal resin is very much more active, and is to be preferred for medicinal use.

By the following tabular statement, the relative value of the officinal resin, as compared with some commercial varieties, will be seen based upon the relative activity of the ethereal and alcoholic resin; all were found to be free from admixture, and with one exception were found to be superior to many specimens of western manufacture; the difference in color is probably due to various modifications in the process of preparation, by the application of heat in the separation of the resin, which no longer becomes necessary with the use of hydrochloric acid, or by the addition of a greater or less amount of muriate of berberina.

No. 1. U. S. Pharmacopœia, 1870; light yellowish brown. No. 2. B. A. Hance, Philadelphia: bright yellow. No. 3. Manufacturer unknown: dark brown. No. 4. B. Keith & Co., N. Y.: yellowish

brown. No. 5. Charles Ellis, Son & Co., Philadelphia: bright yellow. No. 6. Tilden & Co., New Lebanon, N. Y.: bright yellow.

Action of Solvents upon five grams of Resin.

	1	2	3	4	5	6
Soluble in Turpentine,	Insoluble	Insoluble	Insoluble	Insoluble	Insoluble	Insoluble
" " Ether, . .	4·6	3·95	2·95	3·55	4·2	4·3
" " Chloroform,	0·02	0·01	0·01	0·015	0·005	0·02
" " Carb. Bisulph.	——	——	——	——	——	——
" " Petrol. Benzin	——	——	——	——	——	——
" " Officinal solution Potassa re-precipitated by HCl in excess, ...	0·17	0.77	1·65	1·2	0·52	0·51
Loss, ...	0·21	0·27	0·39	0·235	0·275	0·17
	5	5	5	5	5	5

Solubility of two grams of Ethereal Resin.

	1	2	3	4	5	6
Soluble in Chloroform, . . .	1·4	1·25	1 6	1·32	1·15	1·2
" " Carbon Bisulphide, .	—	—	—	—	—	—
" " Petroleum Benzin, .	—	—	—	—	—	—
" " Ether or Alcohol, .	0·45	0·55	0·3	0·45	0·70	0 6
Loss, ...	0·15	0·20	0·1	0·23	0·15	0·2
	2	2	2	2	2	2

Some experiments were made with a view of isolating the white alkaloid, stated some time since by Professor Mayer to be contained in that portion of the former officinal resin which is insoluble in ether, but by the present process, should its hydrochlorate be soluble in water, it should have been present in the mother liquor, remaining after the precipitation of the resin, but was not there detected.

REMARKS ON RESIN OF PODOPHYLLUM.

By J. M. Maisch.

Five or six years ago, while attempting to ascertain the amount of berberina in the officinal resin of podophyllum as prepared by myself by the process of the U. S. Pharmacopœia for 1860, I obtained, by treatment with boiling water, on cooling the filtrate, a light brownish-

yellow powder, which was at first supposed to be the native berberina salt, but was found to be entirely free from this alkaloid. On continuing the treatment of the undissolved residue with boiling water, the filtrate, on cooling, continued to deposit a powder, at first of the same color as that previously obtained; but subsequent portions of the clear filtrate separated a much darker colored powder. A comparatively small amount only of the officinal resin appeared to be insoluble in the hot water, but its percentage was not ascertained.

This observation was conclusive proof that the term *resin* is a misnomer for this officinal preparation, although it is the best descriptive term that, in our present state of knowledge, can be applied. But the behaviour to water, as indicated above, appears also to point to a method whereby the constituents of this so-called resin may be separated from each other, or their complete separation be verified. To the above facts I have since called attention in my lectures, endeavoring to induce some one having sufficient time at command to investigate the true chemical nature of this preparation. It is to be regretted that Mr. Power's time did not permit him to pursue the subject further.

The complete solubility of the active portion of resin of podophyllum in water being conclusively proven, it may perhaps be taken advantage of in such cases where it is to be given in very small doses, and in a pleasant liquid form. But the precise extent of this solubility in water of different temperatures requires to be ascertained.

In a paper by Mr. C. Bullock (see *American Journal of Pharmacy*, 1862, p. 114,) it is stated, upon the authority of the "Journal of Materia Medica," that the resin soluble in ether varies considerably with the season in which the officinal rhizome is collected; careful assays of the latter as collected monthly, (in the Middle States) from April to October, can alone determine the extent of this variation, and may then, perhaps, also clear up the contradictory statements relating to the activity of the portion insoluble in ether; of this solvent not only the commercial name (washed or concentrated ether) should be given, but its correct specific gravity at 60° F. should always be ascertained. Those interested in this investigation are referred also to a note by Prof. Procter, in the *American Journal of Pharmacy*, 1860, p. 210.

AQUA CAMPHORÆ.

By Franklin T. Hartzell, G. P.

Extract from an Inaugural Essay.

The officinal formula for this preparation seems theoretically defective. The Pharmacopœia merely directs that the camphor, reduced to a pasty mass with alcohol, be rubbed with the carbonate of magnesium and water, and filtered. In practice I have found that the resulting milky liquid, however carefully rubbed, becomes more or less lumpy or gritty in consequence of the precipitation of the camphor among the particles of the magnesia on the addition of water. It is obvious that the particles of camphor enveloped in these little lumpy masses are not in a favorable condition for solution in the water. This difficulty is easily obviated. In making camphor water I discard the use of alcohol entirely. With a few drops of ether I reduce the necessary quantity of camphor, in a mortar, to an impalpable powder in a few moments. The ether evaporates instantly and is not open to the same objection as the alcohol, that of contaminating the resulting medicated water by its presence. I then rub the powdered camphor with the magnesia and a part of the water, and pour the liquid through a funnel sieve into a bottle of the requisite size, returning to the mortar the lumpy portions that at first refuse to pass through the sieve, and rubbing them with more of the water. If the resulting milky liquid be now thoroughly agitated, and filtered immediately, the camphor water will be found to be decidedly stronger than many specimens, made by the ordinary process, that have stood some time and received occasional agitation before filtering; and if it be allowed to stand in the stock bottle, occasionally agitated, and filtered off when wanted for use, its superiority to that made in the officinal way will be perceived to be unquestionable. In making large quantities of camphor water, the powdered camphor might first be passed through a tolerably fine sieve, dry, so as to avoid the annoyance, when rubbing it with the magnesia and water, of encountering any lumps, which, through the carelessness of the operator, might have been left undissolved by the ether. But in making either large or small quantities, the milky liquid should be poured through the funnel sieve, and the lumpy portions rubbed down in the manner previously described.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

The constitution of Tannic Acid.—Hugo Schiff gives a critical review of the researches on this subject, particularly since the investigations of Strecker,* and from these as well as his own experiments arrives at the conclusion that the presence of glucose is entirely unimportant for the reactions generally ascribed to tannic acid, and that, therefore, this compound, if perfectly pure, is *not a glucoside.*

Gallic acid was slowly heated with oxychloride of phosphorus to between 115 and 120° C., and kept at this temperature for several hours ; during this process only hydrochloric acid gas was evolved. The residue in the flask was purified from gallic and phosphoric acids by washing with *absolute* ether, dissolving in cold water, filtering and precipitating by table salt. After further purification an amorphous and inodorous mass was obtained, possessing all the chemical reactions of tannic acid, and which, by boiling with dilute muriatic or sulphuric acid, was completely converted into gallic acid, from which tannic acid was again obtained by treatment with phosphor-oxychloride. This reconversion of one substance into the other was repeated three times ; the wash waters collected in the process contained neither glucose nor any other saccharine body. Ultimate analysis gave results agreeing with the formula ($C_{14}H_{10}O_9$) for tannic acid, and it is accordingly formed from gallic acid by the abstraction of water ($2C_7H_6O_5$—H_2O) ; being the first anhydride of two molecules of gallic acid, it is *digallic acid.*

The same result was more easily obtained when gallic acid was treated with arsenic acid, which is not reduced thereby. Commercial tannin contains glucose ; on dissolving it in a solution of acetanhydride in an equal volume of glacial acetic acid, heating to boiling and then pouring into water, triacetylglucose is dissolved and pentacetyltannic acid precipitated. The latter yields, by recrystallization, white wart-like crystals, from which the digallic acid may be obtained by plumbic hydrate.

The tannin of galls appears to be $C_{34}H_{28}O_{22}$, that is $C_6H_{12}O_6$ (glucose) + $2C_{14}H_{10}O_9$ (digallic acid) — $2H_2O$. This compound is readily soluble in ether diluted with water and alcohol ; but if absolute ether containing little alcohol is employed, the gallotannin is decomposed,

* See American Journal of Pharmacy, 1855, 49.

and but little glucose enters into solution. The variable composition of commercial tannin is, therefore, due to the menstruum employed in its preparation, and the different amounts of glucose obtained by various investigators are thereby satisfactorily explained.—*Annalen d. Chem. und Pharm.* clxx, 43–88.

Buchu Leaves.—Professor Flückiger obtained from the volatile oil of Barosma betulina, by exposure to cold, a stearopten, crystallizing in handsome needles and resembling the stearopten of peppermint oil; the elæopten, rectified over sodium, has the composition $C_{10}H_{16}O$. The aqueous infusion of the leaves contains, besides mucilage, a body allied to quercitrin or rutin, which is not altered by ferrous salts, but colored brown-greenish by ferric chloride. The mucilage is contained in a thin layer of cells (collenchyma) situated immediately beneath the epidermis of the upper surface. This layer expands very considerably if the cross-section of a leaf is immersed in glycerin, or more rapidly in water. The expanded collenchyma has one-half the thickness of the leaf of Barosma betulina; but fully two-thirds of the thickness of the leaves of B. crenulata, B. serratifolia and Empleurum serratifolium, all of which are much thinner than those of the first-named species.—*N. Repert. f. Pharm.*, 1874, p. 102–105.

Adulteration of Volatile Oil of Mustard.—Dr. Hager (Pharm. Central Halle) has obtained a sample of this oil which was heavier than water, and was probably adulterated with oil of gaultheria, for its solution in alcohol was colored violet by ferric chloride.

Balsam of Tolu.—P. Carles obtained the acid from soft and hard tolu balsam by digesting it with water and cooling. After recrystallizing from alcohol and water, the nature of the acid was determined volumetrically and the figures 147·85 and 148·40 were obtained for the acid as obtained from hard and soft tolu respectively. The combining weight of benzoic acid, $C_7H_6O_2$, being 122, and that of cinnamic acid, $C_9H_8O_2$, = 148, the author concludes that tolu balsam contains only cinnamic, but no benzoic acid.—*Journ. de Pharm. et de Chim.*, 1874, *Feb.*, 112.

Iodine Caustic is prepared by Rieseberg by dissolving four grams of iodine in eight grams of glycerin. It is used in lupus by applying it once every other day, and covering the parts with gutta percha. This treatment is continued for several weeks.—*Ibid.* 140.

Fluid extract of Chestnut Leaves.—Dr J. Eisenmann, assistant physician at the policlinic of Vienna, has experimented with this preparation, made from the leaves of the European variety of Castanea vesca, collected during the months of June, July and August. The remedy was tried only in such cases of whooping-cough which had but recently entered into the spasmodic stage, and in which the subsequent course of the disease could be well ascertained. Tried in comparison with belladonna, extr. cannabis indicæ, chloral hydrate, inhalation of petroleum vapor, etc., the results were such that the author calls the attention of European physicians to this remedy, which was prepared by the formula published in this Journal, 1871, p. 530.—*Zeitschr. d. Oesterr. Apoth. Ver.*, 1874, 192, *from Wiener Mediz. Presse.*

Permanganic Acid and the Volatile Oils.—A mixture of two parts of perfectly dry permanganate of potassium with two or three parts of concentrated sulphuric acid is a most powerful oxidizing agent, owing to the separation of permanganic acid and its immediate decomposition with the liberation of oxygen. Volatile oils are violently affected by this mixture, if about ten drops are placed in a little dish and then touched with a stout glass rod previously dipped into the mixture. The following produce explosions, often most violently: oils of thyme, mace, turpentine rectified, spike, cinnamon, origanum, rue, cubeb and lemon. The following oils are simply inflamed, particularly if poured upon blotting paper and then touched with the mixture, though under certain still unknown circumstances explosion may occur: Oils of rosemary, lavender, cloves, rose, geranium, gaultheria, caraway, cajuput, bitter almond and rectified petroleum. The following substances are ignited without explosion: alcohol, ether, wood spirit, benzole, chlorelayl, sulphide of carbon and cotton. Gun cotton and gunpowder are not ignited.—*N. Repert. f. Pharm.*, 1874, 177.

Iodo-Bromide of Calcium Compound, By J. R. Black, New York, recommended as an alterative and in cholera, cutaneous diseases, etc., has been analyzed by Dr. Goddefroy of Vienna and found to contain the chlorides of calcium, aluminium, magnesium and sodium; bromide, iodide, sulphate, phosphate and silicate of sodium, and nitrate of potassium. It is probably identical with the so-called chloralum.—*Pharm. Zeitung*, 1874, No. 22.

*Neutral Iodide of Potassium.**—T. B. Groves finds the following

* See page 141 of the March number of this Journal.

the simplest method for obtaining the salt entirely neutral; the commercial salt is dissolved in just sufficient water, its alkalinity is neutralized with dilute sulphuric acid, a small quantity of alcohol is added to remove the sulphate of potassium, and the liquid filtered and evaporated to crystallize. The crystals are small, colorless and speedily turn yellow in contact with the air. The neutral iodide seems to be unable to withstand the combined attacks of ozone and carbonic acid, until a certain degree of alkalinity has been established.

Alfred Southall, in manufacturing this chemical, finds it necessary to have the solution as nearly neutral as possible in order to obtain semi-transparent crystals: in the presence of an excess of acid opaque crystals are obtained.—*Pharm. Journ. and Trans.*, *Feb.* 21, p. 669.

(Our limited experience with iodide and bromide of potassium points to the necessity of having the solutions alkaline in order to obtain opaque crystals.—*Editor Am. Journ. Pharm.*)

Fused Nitrate of Silver, as met with in commerce, is variable in color and often quite black. E. Bouilhon regards as the principal causes the presence of some chloride of silver, the decomposition during fusion of a portion of nitrate of silver, or the presence of some oxide of copper. White lunar caustic is sometimes even more impure in consequence of the addition of potassium nitrate. The author obtains unobjectionable results by the following manipulation: 20 grams pure nitrate of silver, five grams distilled water and one gram pure nitric acid are heated, with the precaution that the margin of the solution is not overheated. After the evaporation of the liquid the heat is carefully regulated and after the salt has commenced to fuse it is often stirred with a glass rod to detach the solid mass when adhering to the sides. When about three-fourths of the salt has liquefied, it is at once poured into a perfectly clean suitable copper-mould, when the sticks are obtained of unobjectionable solidity and opaque whiteness. The residue in the capsule should be treated with water and nitric acid as before.—*L'Union Pharm.*, 1874, *Feb.*, 35.

*Potassium Nitrate in Amarantus.**—A. Boutin has obtained from *Amarantus melancholicus ruber*, after drying at 100° C., 16 per ct. nitrate of potassium, equal to 22 grams of nitrogen and 72 grams of potassium for each kilogram of the herb. *A. atropurpureus* yielded 22.77 per cent. potassium nitrate, equal to 31 grams of nitrogen and

* See also American Journal of Pharmacy, 1873, p. 266.

103·5 grams potassa for one kilogram of dry herb.—*Journ. de Pharm. et de Chim.*, 1871, *April*, p. 285.

Ointment for prurigo.—Norwegian tar 15 grams, Rousseau's laudanum* 2 grams, lard 60 grams. Mix. To be used morning and evening. Dr. Girou de Buzareingnes.—*Ibid.* p. 299.

Iodated Syrup of Coffee.—Dr. Calvo recommends syrup of coffee as the best vehicle for disguising the taste of iodide of potassium, and proposes for the administration of this salt, a syrup made by dissolving 16 grams of the iodide in 500 grams of syrup of coffee. Dose, a tablespoonful, twice or thrice daily.—*Ibid.* p. 299.

CHLORAL HYDRATE AND CAMPHOR.

By J. F. Brown.

When camphor in fine powder is rubbed in a mortar with an equal weight of pure crystallized hydrate of chloral, the mass becomes damp, and slowly dissolves to form a syrupy liquid, strongly resembling glycerin in appearance.

A rise in temperature of about three degrees Fahr. accompanies this change, showing that a chemical reaction of some kind must evolve heat more than sufficient to counterbalance the loss of sensible heat which always attends the passage of a substance from the solid to the liquid state.

No acid or irritating fumes, however, were perceptible during the solution, and the resulting liquid was neutral to test paper.

It was unaffected by solution of silver nitrate, left a greasy stain when dropped upon paper—permanent for some hours—and retained the taste and smell of its components.

A slip of paper dipped into it did not ignite very quickly when brought near a light, but burnt with a bright white flame, having emerald green edges.

It was readily soluble in alcohol and ether, but distilled water converted it into a soft translucent solid, from which, after some time, hydrate of chloral appeared to be dissolved out, leaving the camphor in crystalline grains.

* Rousseau's laudanum is made by fermenting 1 p. opium, 3 p. honey and 15 p. water, with some yeast, expressing, filtering and evaporating to 3 p., after which 1 p. alcohol is to be added.—*Paris Codex.*

These facts appear to point to an abstraction of water by the camphor, and solution of the latter in the liberated chloral; but such an avidity for water is not shown by camphor under ordinary circumstances, and the cause of this curious liquefaction is not easily discernible.

[*** Some time since the *Medical Record* quoted from an American source a statement that if camphor be powdered by rubbing it in a mortar with a few drops of spirit, and an equal weight of chloral hydrate added, a liquid is produced which is a valuable local anæsthetic. Mr. Lennox Browne, writing to the *British Medical Journal* (March 7th, p. 304), confirms this statement, and says that it is of the greatest value as a local application in neuralgia. Mr. Browne having employed it during several months, has found great and sometimes instantaneous relief to follow its application in every case. It is only necessary to paint the mixture lightly over the painful part and allow it to dry. The application never blisters, though it may occasion a tingling sensation of the skin. The compound has also been found of great service in the relief of toothache.—Ed. Pharm. Journ.]—*Pharm. Journ. and Trans., March* 14, 1874.

EXTRACT OF MEAT.

By C. F. Chandler, Ph. D., and F. A. Cairns, A. M.

The following analyses were made for the purpose of determining, as fully as possible by analysis, the comparative value of the meat extract made by the "Liebig Company" (*Fray-Bentos Extract*) and that made at the "San Antonio Meat Extract Factory." The most important test of the comparative value of these extracts is probably the percentage of nitrogenous matter soluble in alcohol, and the percentage of nitrogen in this matter. This is largely due to the fact that gelatin is not soluble in this liquid.

	Liebig's Fray Bentos Extract.	San Antonio Meat Extract Factory.
Water (expelled at 212° F.),	17·21	14·78
Ash,	13·01	18·16
Substances soluble in 88 per cent. alcohol, dried at 212° F.,	33·09	44·57
Fat, etc., soluble in ether,	0·14	0·18

	Liebig's Fray Bentos Extract.	San Antonio Meat Extract Factory.
Total nitrogen,	8·18	9·12
Nitrogen in portion soluble in alcohol,	3·19	4·75
Soda,	2·44	2·35
Potassa,	9·20	7·55
Lime,	0·05	0·06
Magnesia,	0·56	0·50
Oxide of iron,	0·02	0·07
Chlorine,	2·98	1·95
Sulphur,	0·29	0·22
Sulphuric acid (SO_3),	0·03	0·03
Phosphoric acid (PO_5)	8·20	5·64

School of Mines, Columbia College, N. Y., Feb. 4, 1874.

—*American Chemist, April*, 1874.

IMPROVING WINES.

By J. M. Merrick, B. Sc.

The process of Pasteur for improving wines by gently heating them is well known and practised in France. I have not heard of its application in this country, nor have I been informed that the use of neutral tartrate of potash is here in vogue to remove by precipitation a suitable fraction of the excessive amount of tartaric acid present in the juice of our native wines.

I call the attention of the readers to these two well-known methods, because I have practised both on a small scale, and can testify to their practical value.

In the autumn of 1871 I made from Concord grapes of my own raising a cask of about 120 gallons of wine, adding one and one-half pounds of sugar to each gallon of juice. This gave a beautiful bright red, clear wine, of not unpleasant flavor, and containing by my analysis, made in June, 1873, 17·5 per cent. of alcohol. The fault with it was that it was undrinkably sour, good judges asserting that it had gone over so far that it could not be cured. On analysis, I found it to contain a little more than *one per cent.* of free acid, mainly tartaric. I added in September last about seven pounds of neutral tartrate of potassa to the cask with gratifying results. The color of the wine is lightened, the flavor uninjured, and the hardness and sourness diminished, so that the work of four or five years seems to have been done in as many months.

Mr. E. W. Bull, of Concord, Massachusetts, the originator of the Concord grape, has produced a seedling from the Concord, called the Cottage, and from this new grape the past season I made about one gallon of wine, which a week ago was harsh, crude and not palatable. By the addition of a trifling—unweighed—amount of neutral tartrate of potassa, and by heating the wine to about 50° C., its character has been so changed and improved that no one recognizes in the present mild, high flavored, and not acid wine, the former harsh, crude, and repulsive product.

Laboratory, 59 *Broad St.*, *Boston*, *Jan.* 15, 1874.

—*American Chemist, March*, 1874.

Minutes of the Philadelphia College of Pharmacy.

Philadelphia, 3d Month 30th, 1874.

The annual meeting of the Philadelphia College of Pharmacy was held this afternoon, at the Hall of the College. Twenty-eight members were present. Dillwyn Parrish, President, in the chair.

The minutes of the meeting in December last, and of the special meeting held in February, were read and approved.

The minutes of the Board of Trustees for the past three months were read by William C. Bakes, Secretary of the Board. They inform us that at the late Commencement, held at the Academy of Music, the Diploma of the College was conferred upon eighty-one graduates. They also further state that the Board have purchased the three houses adjoining the College, fronting on Tenth Street, making our lot an equal width throughout its entire length, for sixteen thousand five hundred dollars. The minutes of the Board were, on motion, unanimously approved.

Thomas S. Wiegand, Librarian, made the following report, which was accepted and approved:

"The Librarian respectfully reports that since the last annual meeting there have been added to the library about fifty new volumes, most of them being exchanges with other scientific bodies, which, being of permanent interest to the pharmacist, have been bound. The binder has now in hand forty more volumes which will be finished in a short time. The theses of all who graduated in the spring of the past year have been bound, and there are now forty-seven volumes of manuscript of this kind in the library. By direction of the Board of Trustees the library was opened one afternoon and two evenings each week during the past lecture season, and over one half of the volumes in the library have been arranged in accordance with the subjects treated of, preparatory to making a new catalogue."

The following report of the Curator was read and accepted:

"The Curator would respectfully report that the work of refitting the cabinet is still progressing. The New England Glass Company, who are making some sample glass jars, have not finished their work, but they expect to forward the remainder of the jars in a few days. Quite a number of donations to the cabinet have been, and still continue to be, received through the pharmaceutical meetings, and it is hoped that when the new cases have been fitted-up with the glass jars there will be a large increase in the contributions.

JOSEPH P. REMINGTON."

Professor J. M. Maisch, on behalf of the Publication Committee, made the following report, which was read and approved:

To the Philadelphia College of Pharmacy:

"The Publishing Committee respectfully reports that its duties have heen duly and successfully attended to during the past year, as will be seen from the annexed reports. The editor refers in his report to a few unavoidable delays in the publication of the monthly numbers of the Journal, which elicited inquiries from many subscribers, in the belief that their copies had miscarried; the arrangements with the printer are such that similar delays are not likely to occur during the ensuing year. The editor also states that original articles in the *Journal* during the past year have been contributed by sixty authors, and bespeaks for the future a renewed interest on the part of its readers by original contributions, either directly or through the medium of the pharmaceutical meetings of the College.

The General Index of the Journal, compiled by Mr. Hans M. Wilder, was issued shortly after the last annual meeting, and has elicited the approving comments of all who have examined it. Its sale has not been so large as might have been anticipated, and many copies must still be sold merely to reimburse the Committee for the cash expenses incurred. It is to be hoped that most of the readers of the Journal will procure a copy, through which the usefulness of all the volumes published prior to 1871 is greatly enhanced, and their consultation facilitated.

The Committee cannot close its annual report without alluding to the great loss sustained in the death of Professor William Procter, Jr., who, for thirty-two consecutive years, has been its most efficient member, and since is reorganization in 1871, its chairman, while during a period of nearly twenty-one years he had acted as the sole editor of the Journal.

JAMES T. SHINN, *Chairman pro tem.*
CHAS. BULLOCK,
JOHN M. MAISCH,
THOS. S. WIEGAND, *Secretary.*

The Editor's report to the Publication Committee was also read, giving a detailed statement of the labor performed. The following is an extract from it:

"The pharmaceutical meetings have within the last few years been growing in interest, notwithstanding the papers presented there have not been so numerous as might be expected. But even in this an improvement is noticed, which would leave nothing to be desired, if *all* members would endeavor to be present and to communicate their observations and discoveries, either in writing or verbally. The published records of these meetings have attracted considerable attention, not only in this country but also abroad, and it would seem to be but a duty each member owes to the College and its reputation to feel interested in the success of these meetings, from which he is likely to derive considerable information of usefulness and direct benefit in his business."

JOHN M. MAISCH, *Editor.*

Charles Bullock, Treasurer of the Publication Committee, read the annual report, which was accepted and approved. It sets forth the moneyed operations of the past year in a very favorable light, and shows this department of the College to be in a very prosperous condition.

Thomas S. Wiegand, Chairman of the Committee on the Sinking Fund, made a report showing the balance of cash in his hands to be $292.

The following letter from Peter Williamson, Esq., one of the founders of the College, to the President, was read:

804 Pine Street, March 10th, 1874.

To Dillwyn Parrish:

Dear Sir,—In reply to your note of this morning, I will merely say that I give the sum of five hundred dollars (the check for which you will find enclosed) to the Philadelphia College of Pharmacy, in trust for the creation of an endowment fund, the interest of which to be applied for the benefit of such needy and deserving applicants as the Trustees may select, in defraying the requisite expenses attendant on the lectures and other modes of instruction adopted by the College.

With my thanks for the interest you have evidenced in the carrying out of this design, which I have for some time entertained,

I remain, truly, your friend, Peter Williamson.

The donation was accepted, and the check passed over to the Treasurer of the College.

Joseph P. Remington offered the following resolutions, which were unanimously adopted, and the Secretary was directed to send a copy to Mr. Williamson:

Resolved, That the College gratefully appreciate the warm interest manifested by our esteemed friend Peter Williamson, and direct that the donation be placed in the hands of the Trustees, to be invested by the Treasurer, and kept as an endowment fund, the interest of which is to be applied in accordance with the wishes of the generous donor.

Resolved, That the letter of Peter Williamson be filed among our records, and that a copy of these resolutions be forwarded to him with the thanks of the College.

A motion that the further consideration of the subject, relative to the fulfilment of the wishes of Mr. Williamson, be referred to the Board of Trustees for their action, was adopted.

The following letter was read from Joseph C. Turnpenny:

813 Spruce Street.

Dillwyn Parrish, *President of the Philadelphia College of Pharmacy:*

My dear Friend,—I send herewith an extract from the Will of our lamented friend the late William Procter, Jr., deceased, which please receive and present to the next meeting.

Thy obliged friend, Jos. C. Turnpenny.

3d mo. 20th, 1874.

Extract from the Will of the late William Procter, Jr., deceased.

I give to the Trustees of the Philadelphia College of Pharmacy the sum of five hundred dollars. in trust, to be permanently invested, and the interest to

be annually expended, either for a medal, for books, for instruments, or for any other appropriate object that may be deemed best by the Board, and the same given as a reward to the most meritorious Graduate in Pharmacy, when in its opinion such a reward is deserved.

The Executors of the late Prof. Procter not being prepared to hand over the bequest, no action of the College thereon was deemed requisite at this time.

The Treasurer reported the names of six members of the College who are in arrears for over four years. A motion ordering their names to be stricken from the roll of members, under a rule of the By-Laws, was unanimously adopted.

Resolutions relative to the death of Professor Procter, received since the publication of the March number of the Journal, from the Chicago and Louisville Colleges of Pharmacy, were read by Prof. Maisch, and, on motion, referred to the Publication Committee. (These resolutions appeared in the April number of the *Journal.*)

This being the annual meeting, an election for officers was ordered, a recess being granted for the purpose. William B. Webb and Edward C. Jones acting as tellers, reported the following gentlemen elected to the respective stations enumerated below, viz.:

President—Dillwyn Parrish.

First Vice President—Charles Bullock.

Second Vice-President—Robert Shoemaker.

Treasurer—Samuel S. Bunting.

Recording Secretary—William J. Jenks.

Corresponding Secretary—Alfred B. Taylor.

Board of Trustees—Robert Bridges, M.D., John M. Maisch, Daniel S. Jones, Thomas S. Wiegand, James T. Shinn, T. Morris Perot, William B. Webb, Joseph P. Remington.

Publication Committee—John M. Maisch, Charles Bullock, Thomas S. Wiegand, James T. Shinn, Henry N. Rittenhouse.

Sinking Fund Committee—Thomas S. Wiegand, T. Morris Perot, James T Shinn.

Editor—John M. Maisch.

Librarian—Thomas S. Wiegand.

Curator—Joseph P. Remington.

There being a vacancy in the Board of Trustees, caused by the election of Charles Bullock as First Vice-President, Edward C. Jones was nominated to fill his place. There being no other nomination, the President was, on motion, requested to cast an affirmative ballot for him, which being done, Mr. Jones was declared unanimously elected a Trustee for the unexpired term of Charles Bullock.

There being no further business, on motion, adjourned.

William J. Jenks, *Secretary.*

Minutes of the Pharmaceutical Meeting.

On April 21st, 1874, a regular monthly meeting was held at the College, fifteen members present. The meeting was called to order by Mr. Charles Bullock, Vice-President. The registrar being absent, the meeting appointed J. K. Hecker, Secretary pro tem.

Under the head of donations to the libary, Prof. Maisch presented a copy of the Year Book of Pharmacy and Transactions of the British Pharmaceutical Conference, for 1873; also the Proceedings of the American Pharmaceutical Association, for 1873, and a bound volume of the Public Ledger Almanac, 1870–73, which were accepted and the thanks of the College tendered.

Prof. Maisch exhibited a handsome specimen of the flowers of Pyrethrum roseum, obtained from Messrs. Bullock & Crenshaw. The plant grows in Asia Minor, the Caucasus Mountains, etc., and when powdered constitutes the so-called Persian insect powder,

Dr. Pile read a paper on the proper specific gravity of sulphuric acid of the U. S. P.* In the discussion which followed, attention was drawn to some inconsistencies of the pharmacopœia in directing the use of absolutely pure chemicals, and in some processes taking notice of the usual impurities; sulphuric acid and oil of wine were mentioned among other instances.

Prof. Maisch inquired whether aay member present had had any experience in mixing camphor and chloral, and to what extent the mixture is prescribed. Messrs. Heinitsh and Boring replied that they had occasionally to prepare the mixture, which, after some trituration, forms a liquid, or more slowly by leaving the two articles in contact with each other.† In regard to the cause of liquefaction a short discussion ensued, but no definite or satisfactory explanation was given.

A communication from a member of the college was read by Prof. Maisch, suggesting that a prescription bottle be devised with a lip of such shape that liquids might be dropped from it with greater facility than can be done from those at present in use. It was then stated that Messrs. Whitall, Tatum & Co. undertook to make bottles with thin lips, from which liquids could be dropped readily enough, but if the lips have too thin an edge they are very liable to splinter or crack off, making such bottles impracticable.

Mr. Boring exhibited a syrup of orange peel made by the process of the German Pharmacopœia, by treating the fresh orange-peel with German white wine. The syrup was perfectly clear, had a fine odor of wine, and when dilute a very agreeable flavor of orange.

Mr. Bullock inquired whether any of the members had noticed a precipitate in the tincture of chloride of iron, U. S. P. He said that he had noticed it himself, examined into the cause of precipitation, and considers it to be due to a deficiency of acid.‡ Prof. Maisch then stated that the Pharmacopœia di-

* See page 216. † See also the paper on page 239. ‡ See also page 248.

rected an excess of acid to be used, and that a deficiency thereof could only occur by overheating Mr. Boring remarked that he saw it stated in Attfield's Chemistry, that the alcohol in the tincture is unnecessary, useless and deleterious, and causes the gradual precipitation of a basic iron salt. Prof. Maisch said that the preparation, in its usual doses, could not be considered deleterious; unpleasant effects arising therefrom may most likely be refered to the presence of excessive proportions of amylic alcohol and the subsequent formation of compound amylic ethers; the compound formed from muriatic acid and alcohol are used in medicine and officinal in some pharmacopœias. Dr. Bridges then remarked that the diuretic properties of the tincture are due to the chlorinated ether which is slowly formed in the officinal preparation.

Mr. Hazard exhibited a suppository mould invented by L. R. Blackman, of Newport, Rhode Island. It is made of bell metal, nickel plated, and consists of two plates of about equal thickness, the upper one perforated and the lower containing depressions equal in number to the perforations in the upper plate; the two plates are separable and adjustable by means of set-pins and grooves, so that the openings in the upper plate register with the depressions in the lower plate, forming when taken together a conical mould. Mr. Hazard also stated that there are two sizes made, one making twenty-four suppositories of thirty grains each and one making thirty of fifteen grains each.

The meeting then adjoarned.

J. K. Hecker, *Secretary pro tem.*

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—The vacancy in this college, occasioned by the sudden death of Professor Procter, has been filled by the Board of Trustees by the election of Joseph P. Remington, Professor of Pharmacy. Mr. Remington, already favorably known by his contributions to the *American Journal of Pharmacy*, and his labors for the American Pharmaceautical Association, has had unusual advantages in fitting himself for this position, having for the last three or four years acted as assistant at the lectures of the late Professors Parrish and Procter, and being, therefore, thoroughly familiar with the lecture plans and system of instruction of both these teachers of pharmacy. Another important advantage of his is his former connection with the well known laboratories of Dr. E. R. Squibb, of Brooklyn, N. Y., and Messrs. Powers & Weightman, of this city. He brings to his new position, therefore, a large practical experience, and we doubt not he will use his best efforts for sustaining the reputation of the chair in which he follows two such eminent men.

Massachusetts College of Pharmacy.—The commencement took place in Horticultural Hall, April 22, Professor Markoe delivering the valedictory. President Colcord conferred the degree of Graduate in Pharmacy upon the

following gentlemen: Silas Stone Bradford, (Lime water); Paul John Brown, (Digitalis); Horace Mann Burnham, (Tincture of Belladonna); John Edward Connor, (Weight and Volume of Finished Products of some of the Officinal Formulæ); George Henry Cowdin, (Cinchona); Lebbeus Curtis, Jr., (Opium and its Alkaloids); Frank A. Davidson, (Coffee); John Granville Godding, (Cubebs); Edward Bartelle Gordon, (Citric Acid); Jeremiah Thomas Leary, (Lac Sulphur); William Thomas Lee, (Pareira Brava); Benjamin Franklin Riddle, (Anthelmintics); James Bradbury Small, (Mistura Ferri Composita); Austin Edward Wallace, (Formulæ of the U. S. Pharmacopœia in Metrical Weights and Measures); Frank Granville Winn, (Hydrocyanic Acid), The Alumni Association prize was awarded to J. T. Leary.

New York College of Pharmacy.—The annual commencement took place at Association Hall, March 31. The degree of Graduate in Pharmacy was conferred by President Balluff upon the following gentlemen: G. Nolton Ashley, (Strychnos Nux Vomica); Alexander Beck, (Commercial Hydrocyanic Acid); Joseph R. Bond, (Nickel); Adolph Boyken, (Phosphorus); Louis E. Braun, (Analyses of Glycerins); John S. Broas, (Aconitum Napellus); Louis F. Buchhop, (Scale Preparations of Iron); Richard B. Cassebeer, (Hydrocyanic Acid); Max Clausius, (Strychnos Nux Vomica); Louis S. Cohen, (Synopsis of the History of Zinc); J. W. Dougan, (Ergota); H. Adolph Engel, (Sugar); Clemens L. Eschmann, (Potassii Iodidum); Sidney Faber, (Pharmaceutical Manipulations); John Ferrier, (Anæsthetics and Chloral); William H. Griffith, (Baric Compounds); I. M. Hussa, (Glycerin); Richard Kuehne, (Analysis of Urine); C. Axel F. Lagerstedt, (Syrup of Iodide of Iron); Gottlieb Meier, (Foliage, its Functions and Morphology); Charles Mitzenius, (Best mode of extracting Vegetable Substances); Frederick C. Nadler, (Adulteration of Cinchona Micrantha); Henry M. O'Neil, (Poisons); Charles Perck, (Citro-Sesqui-Iodide of Iron and Potassa); Albert C. Smith, (Digitalis); W. I. Townsend, (Carbon and its Compounds); C. Ernst Vetter, (Morphine in Residues from Laudanum); Bernhard Wendler, (Specific Gravities); Gustav F. Werner, (Products from Destructive Distillation of Wood); Robert G. Weyh, (Atropa Belladonna); Frederick Wichelns, (Poisons and their Antidotes); John L. Yatman, (Pepsin); George Zellhoefer, (Chromium and its Compounds); Robert G. L. Zoeller, (Quinia and its salts). Prizes in money were awarded to R. Kuehne, B. Wendler, and G. F. Werner. The valedictory was delivered by Professor Bedford.

This College has issued a pamphlet of 50 pages, containing historical notes of its progress, the charter and by-laws, the pharmacy acts of 1871 and 1872, code of ethics, lists of members, officers, professors, graduates and of the registered pharmacists and assistants; also a catalogue of the library, and obituary notices of members recently deceased.

Pharmaceutical Society of Great Britain.—At the pharmrceutical meeting held April 1, President Thos. H. Hills in the chair, Mr. W. Martindale

read a dispensing note on chloro-mercuriate of morphia. Eight grains corrosive sublimate and four grains muriate of morphia were prescribed to be dissolved in one ounce of water, to be used for subcutaneous injection. After the salts had been dissolved in hot water, a large deposit of silky acicular crystals occurred on cooling, which were recognized as the double salt mentioned. By using a mixture of seven parts of water to five of glycerin as a solvent, the same salt crystallized in a few days, and the solution, which had been used hypodermically in the meantime, neither lessened the pain nor inconvenience which a simple solution of corrosive sublimate would have produced. A solution of alkaline chloro-albuminate of mercury made from Staub's formula,* but more concentrated, was made and found to cause less pain and to enter more readily into circulation than a simple solution ; but after some time it became curdy.

Mr. E. M. Holmes read a paper entitled Materia Medica Notes, after which Mr. Hanbury stated that he had seen a drug sold as arnica root which did not contain any arnica at all, but consisted entirely of a root unknown to him.

Dr. De Vrij brought up the subject of perchloride of iron ; he objected to have the liquor substituted for the tincture, and stated that a really neutral solution of the salt may be obtained by passing chlorine gently through a solution of ferrous chloride and driving off the excess of chlorine in a water-bath ; if now mixed with alcohol the tincture remains bright and clear if exposed to the sunlight, but yields a precipitate if kept in the dark.

Prof. Attfield expels the excess of chlorine, instead of by heat, by passing through the solution a steady current of air ; if the tincture is exposed to the light, a reduction of ferric to ferrous chloride takes place and ethereal compounds containing chlorine are formed. Alcohol, therefore, does not preserve ferric chloride, but decomposes it, and the tincture is not a definite preparation, while the aqueous solution may be kept for any length of time without spoiling.

After some reference to Bestucheff's golden tincture, J. W. Umney read a paper on the British Pharmacopœia Addendum, and a discussion took place in relation to variations in different issues of the same. Professor Redwood stated that the proposed additions had been printed with the title "addendum" merely for circulation among the members of the Medical Council, whilst the official publication has only recently been issued under the title of "Additions to the Pharmacopœia."

* Staub's formula directs to dissolve 1·25 grams each of corrosive sublimate and chloride of ammonium, and 4·15 grams chloride of sodium in 125 grams of water. A solution of the white of one egg is made in sufficient water to obtain 125 grams ; the two solutions are mixed and filtered.—*Journ. de Pharm. et de Chim.*, 1873, p. 382.

Editorial Department.

Pharmaceutical Legislation.—On pages 209 to 213 we publish an article upon this subject, written by Mr. Charles C. Fredigke, of Chicago, in which the ground is taken that the laws, as they have been passed in several States within the last four or five years, are contrary to the Constitution of the United States. This is a new argument, which we do not remember to have met with since 1867, when this question for the first time came up before the American Pharmaceutical Association. We do not profess to be well versed in law, but we are aware that legal advice has been taken in several places, and that the answer invariably has been that the right of the Legislatures to pass such laws cannot be construed into an unconstitutional interference with the business of an apothecary; but that a law regulating the practice of pharmacy is simply a regulation of sanitary police, and as such rests on the same basis as, for instance, laws and regulations concerning the abatement of nuisances, the manufacture, storage and sale of gunpowder, etc. We have never heard the right of States questioned to make and enforce sanitary regulations, and presume that this is one of the powers which, by the Constitution, is not delegated to the United States, nor prohibited to the States; and that it is therefore reserved to the latter. This must certainly be the correct view, since the prosecutions, which were instituted under the pharmacy acts in Baltimore, New York and Rhode Island, have invariably resulted in the conviction of the offenders.

Mr. Fredigke's position is probably correct, that nobody can be called upon to show *how* he came about his profession: that his ability to practice it is the only evidence required. Yet it must be borne in mind that lawyers are nowhere in this country admitted to practice their profession in the courts until they have studied a certain length of time and have passed a satisfactory examination. Moreover, their names may be stricken from the roll of attorneys for unprofessional conduct, when they will be absolutely debarred from appearing before the courts on behalf of clients, although no power can prevent them from giving legal advice to those who may consult them after they have lost their standing in court. Similar regulations, we believe, are in force in all the States, and it seems to us that since most of the cases entrusted to lawyers involve only questions of money or property, that the State should certainly have the power to prescribe certain regulations for a trade or profession, to the followers of which the health and even the life of the public is daily entrusted.

Pharmacy is no concern of the Government at large, neither is medicine and surgery; for the general Government does nothing towards maintaining medical colleges. Yet the aspirant for a position in the medical corps of the United States army is required (and this is one of the first conditions) to furnish proof that he has graduated at a reputable college; this, among other qualifications, must be produced before the applicant is admitted to an examination. The Government, through its officers, has established a standard, which is in advance of the accomplishments required by most medical col-

leges as *sufficient* to entitle the student to the legal right to affix to his name the coveted M. D. A similar standard would doubtless have been established if pharmacy had as yet been recognized as an essential branch of the hospital service of the national army and navy. At present, in both services, such applicants are preferred for the position of hospital steward, who are well versed in, or at least acquainted with, pharmacy; but any intelligent soldier may be selected to fill an occurring vacancy.

It is an entirely different question whether the pharmaceutical laws, as far as enacted, can be or have been carried out. While we do not believe that the Supreme Court of the United States could declare these laws unconstitutional, it is nevertheless true that their effectiveness does not solely depend upon either a favorable or adverse legal decision, but, to a very considerable degree, upon those who may be called upon to carry them out. If their appointment rests with a political officer, he will probably, in many cases, be more influenced by party considerations than by the professional fitness of the aspirants. The administration of such laws should therefore always be entrusted to incorporated pharmaceutical associations or colleges.

The measures advocated by Mr. Fredigke tend towards a system similar to those which have been in force in the greater portion of Europe; but which, it seems to us, are fast losing their hold to make room for others more in accordance with the progressive spirit of the present time. The very stringent laws by which pharmacy in Germany has been regulated, have been unable to prevent the retailing of many drugs by others than pharmacists, and the so-called "wild apothecaries" appear in some places to do a thriving business, to the detriment of the "approved apothecaries," who are hemmed on all sides by regulations going into minutiæ. The monopolies there created by the State in the limitation of pharmacies, have enhanced the price of these establishments much beyond their real value, so that many are heavily mortgaged. This fact appears to be one of the principal causes that have thus far operated against the removal of many restrictions, and against the reformation of pharmaceutical matters more in concord with the principles of free trade. But already influential voices are being heard advocating a gradual relinquishment of ancient privileges, and in order to stave off a sudden abrogation, to inaugurate a system of redemption of these fictitious values similar to that lately adopted in Sweden, whereby every new establishment will have to contribute a certain sum towards that end, until at a previously fixed time the restrictive measures cease. The pharmaceutical supervision by the State will then hardly mean anything else, but to insure the thorough qualification of the pharmacist and his personal responsibility. Towards this end, it seems to us, pharmacy is gravitating in Continental Europe from its isolated position of restriction, and in this country from its place in the ranks of unrestricted trade.

The suppression of the manufacture and sale of quack nostrums has not been accomplished in Continental Europe; prohibitory measures will always be more or less inoperative, particularly in large communities; but we agree with Mr. Fredigke that it is an evil requiring regulation. It will be better, however, we think, if this question is not mixed up with the former—the qualification of the pharmacist.

Laws, it should be remembered, cannot alter men; that is a question of time and of the correct use of the educational means at our command; if these are judiciously employed, we believe that the progress of pharmacy in the United States will, in the future, be even more marked than it has been during the last three or four decades.

Articles of Immoral Use.—Our readers are undoubtedly aware that an act of Congress forbids the sending by mail of obscene articles; but how far pharmacists and druggists may be affected thereby is probably not generally known, and we should hardly believe it possible, if we had not learned from a reliable source, that recently an apothecary was found guilty, and fined under this act, for no other offence than that of having sent by mail a female syringe.

The conviction was based upon the literal construction of the law, though it is scarcely possible that the judgment should not be reversed if the case was carried to a higher tribunal.

Below we give a coyy of the section in question, the portion italicized being the one under which the conviction took place, and under which almost any article sent by mail might be condemned.

An Act for the suppression of trade in, and circulation of, obscene literature and articles of immoral use, approved March 3, 1873.

Be it enacted, etc.,

Section 2. That Section 148 of the act to revise, consolidate and amend the statutes relating to the Post-Office Department, approved June 8th, 1872, be amended to read as follows:

Sec. 148. That no obscene, lewd or lascivious book, pamphlet, picture, paper, print or other publication of an indecent character, or any article or thing designed or intended for the prevention of conception, or procuring of abortion, nor *any article or thing* intended or *adapted for any indecent or immoral use or nature,* nor any written or printed card, circular, book, pamphlet, advertisement or notice of any kind, giving information, directly or indirectly, where or how, or of whom or by what means either of the things before mentioned may be obtained or made, nor any letter upon the envelope of which, or postal card upon which, indecent or scurrilous epithets may be written or printed, shall be carried in the mail. And any person who shall knowingly deposit, or cause to be deposited, for mailing or delivery, any of the hereinbefore mentioned articles or things, or any notice, or paper containing any advertisement relating to the aforesaid articles or things, and any person, who in pursuance of any plan or scheme for disposing of any of the hereinbefore mentioned articles or things, shall take, or cause to be taken, from the mail any such letter or package, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall, for every offence, be fined not less than one hundred dollars nor more than five thousand dollars, or imprisoned at hard labor not less than one year nor more than ten years, or both, at the discretion of the Judge.

Sec. 5 directs the seizure and condemnation of such articles or things, warrants for the same to be issued by a Judge of a District or Circuit Court of the United States, upon a complaint in writing of any violation of this act and founded on knowledge or belief, and, if upon belief, setting forth the grounds of such belief.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Treatise on Pharmacy; designed as a text-book for the student, and as a guide for the physician and pharmacist, containing the officinal and many unofficinal formulas, and numerous examples of extemporaneous prescriptions. By Edward Parrish. Fourth edition, enlarged and thoroughly revised by Thos. S. Wiegand, G. P. Philadelphia: Henry C. Lea, 1874. 8vo, pp. 977

This work has been in the hands of the pharmacists of this country for so long a period that we may well assume that all our readers are familiar with the previous editions, so that it is mainly necessary for us to notice the difference in the arrangement of the matter of the present edition, and the changes made necessary by the appearance of the new Pharmacopœia and by the general progress of science.

The preliminary matter has been arranged in two parts, the first of which treats of shop furniture, implements, store-room, cellar and laboratory, and introduces several new topics, like ice vault, furnace heat, &c. Part II is devoted to pharmacopœias, weights, measures, specific gravity, and the generation and application of heat. Part III is taken up with inorganic pharmaceutical chemistry; Part IV with pharmacy in its relation to organic chemistry; Part V with pharmacy proper (galenical pharmacy), and Part VI with extemporaneous pharmacy, which is followed by an appendix similar to that contained in former editions.

Each part, as heretofore, is divided into several chapters, and the various preparations, pharmaceutical as well as chemical, are conveniently grouped together into syllabi, thus showing their most important relations to, and their striking differences from each other at a glance. One of the most acceptable features of the work, through its various editions, has been the generalization of facts, whether scientific or elaborated merely for convenience of study, and the grouping together, under such general headings, of the chemical and pharmaceutical preparations used in, or merely of interest to pharmacy and medicine. This plan has been adhered to in the edition before us, which will be found of equal usefulness as the preceding ones.

Several chapters of the work have been almost entirely rewritten, and the entire book gives evidence of the care bestowed upon its revision. The recent pharmaceutical literature and the new Pharmacopœia have received due attention, although a few changes in the latter have escaped the editor's notice, as, for instance, the sources of Levant wormseed, which is erroneously given on pages 412 and 437; and of gamboge, on page 425, which is not in accordance with the results of Daniel Hanbury's researches and the facts accepted by all recent pharmacopœias.

We should have preferred, in this as well as in the previous edition, to see the working formulas of the Pharmacopœia not merely mentioned, but likewise briefly commented upon, and the short criticism on page 753, of which we approve, we consider of sufficient weight to have warranted the omission of nearly all the preparations of the so-called eclectic school. We miss, on pages

476 and 512, the researches of Chas. Bullock concerning the alkaloids of Veratrum viride; aconella and pseudaconitia are not mentioned among the aconite alkaloids p. 474), nor the different species of Eucalyptus, on p. 411, as yielding volatile oil. On page 516 the old term propylamina is still used, instead of the correct one of trimethylamina, and on p. 528 Fumouze's process, based upon that of Procter, for the preparation of cantharidin, has been omitted.

The usefulness of the work is well expressed in the words of Prof. Procter, when reviewing its third edition, in 1864: "The work is well adapted to the wants of the classes for whom it is written, by simplicity of arrangement and great absence of technicality, except in those divisions where it is necessary to express tersely much information by means of formulas.

Jahresbericht über die Fortschritte der Pharmacognosie und Toxicologie. Von Dr. Wiggers, Prof. in Goettingen, und Dr. A. Husemann, Prof. in Chur. 7 Jahrgang, 1872. Goettingen: Vandenhoeck & Ruprecht, 1873. 8vo, pp. 660.

Annual report on the progress of pharmacognosy, pharmacy and toxicolology. For the year 1872.

This well-known repository of investigations and discoveries in the branches named, sustains the reputation which it has acquired during a period of thirty-two years, twenty-five of which it was issued in connection with Canstatt's annual report on the progress of medicine and the allied sciences. The pharmaceutical literature of most countries is carefully studied, and the results are always given in a comprehensive and at the same time very instructive manner.

Medical and Pharmaceutical Notes. By Edward R. Squibb, M. D., and Edward H. Squibb. 8vo, pp. 66.

A reprint from the Proceedings of the American Pharmaceutical Association for 1873. Although disguised by the appellation "Notes," the reader will find that the papers here published in pamphlet form are a great deal more than mere "notes," but give us in the few pages the results of many hours of patient and accurate observation. Though some of the details may be regarded by some as superfluous, yet their instructive character is such as to make them always not merely acceptable, but really welcome. The papers republished are entitled: On the preservation of hypodermic solutions; on ergot and its preparations; on rhubarb; on buying alcohol and distilled spirits; on a general apparatus stand, upright condenser, pinchcock and burette stand. The pamphlet is embellished with a number of excellent woodcuts.

Annual Report of the Supervising Surgeon of the Marine Hospital Service of the U. S. for the Fiscal Year 1873. Washington: Government Printing Office, 1873. 8vo, pp. 154.

The statistical and other information contained in this report does credit alike to the Marine Hospital Service and to the compiler and digester, Dr. J. M. Woodworth. The report proper is followed by an appendix of nearly 100

pages, containing special medical and surgical reports, by Dr. J. M. Toner, Dr. J. M. Woodworth, and other surgeons of the Marine Hospital Service.

Contributions to the Study of Yellow Fever. Washington, 1874. 8vo, 51 pages.

A reprint from the annual report noticed before, and containing a paper by Dr. J. M. Toner, entitled The Distribution and Natural History of Yellow Fever in the United States; with chart showing elevations of localities where it has appeared from A. D. 1668 to A. D. 1874; also a paper by Dr. J. M. Woodworth, entitled The Yellow Fever Epidemic of 1873; Reports from Medical Officers U. S. Marine Hospital Service, with Notes by the Supervising Surgeon.

Dictionary of Elevations and Climatic Register of the United States; containing, in addition to elevations, the latitude, mean annual temperature, and the total annual rainfall of many localities; with a brief introduction on the orgographic and other physical peculiarities. By J. M. Toner, M. D. New York: D. Van Nostrand, 1874. 8vo, pp. 130. Price, $3 in paper, $3.75 in cloth.

When it is considered how completely altitude, in every part of the world, controls the natural productions of a region, and modifies or limits the types and species of animals and plants that exist and thrive there, it will not be thought strange that elevation should powerfully affect the health, vigor, habits, pursuits, and longevity of man. The student of social science, in fact, every intelligent person, is therefore no less interested in this work than the physician, for whom, as the author tells us, the work of compilation has been undertaken, chiefly for the purpose of placing within the reach of the medical profession a record that may enable and induce professional men, in different localities of the United States, to observe, record and contrast the influence of elevation, if it has any, on health and disease.

Among the places enumerated in the dictionary, we observe quite a number located beyond the limits of the United States, in Mexico, Guatemala, Canada and even Europe. The introductory part abounds in valuable facts and suggestive ideas in relation to the influence of altitude, and deduced from all periods of history and all sections of the globe. The data referring to the percentage of deaths and the prevalence of pulmonary and other diseases are particularly interesting, and should excite to extended observations, and to the collection of statistics in all parts of the country.

Discours sur les réactions chimiques de la Picrotoxine dans la Bière. Par H. Bonnewyn, pharmacien à Ixelles. Bruxelles: H. Manceaux, 1874. 8vo, 16 pages.

A discourse on the chemical reactions of picrotoxin in beer.

A former paper on the same subject was noticed on page 384 of this journal for 1871. Mr. Depaire has objected to the sulphuric acid test for picrotoxin, proposed by the author, on the ground that a similar yellow color is produced

by some of the extractive matter contained in beer. The author admits that ether, on account of the water it contains or dissolves, will take up from the extract of beer some extractive along with the poisonous substance in question; but the latter may afterwards be obtained, free from these compounds, if the ethereal extract is treated with chloroform, in which picrotoxin is perfectly soluble.

Synopsis of the Flora of Colorado. By Thomas C. Porter and John M. Coulter. Washington: Government Printing Office, 1874. 8vo, pp. 180.

This is one of the "miscellaneous publications" from the U. S. geological and geographical survey of the territories, Department of the Interior, and possesses great value for the student of botany. The collections of various explorers, made since 1861, were placed at the disposal of the authors, both of whom have spent some months in the territory. Not only all the survey, but science, is indebted to Professor Porter for his share in the work, occupying several months in its preparation without compensation from the Government.

Public Ledger Almanacs for the Years 1870—1873. Philadelphia: Geo. W. Childs.

The four almanacs, some of which we have noticed before, are here presented in a reprint, forming a neat little volume of 233 pages, which is filled with interesting information.

The following pamphlets have been received:

Thirty-first Annual Report of the Managers of the State Lunatic Asylum, Utica, N. Y., for the Year 1873. Transmitted to the Legislature January 8, 1874.

Forty-eighth Annual Report of the Massachusetts Charitable Eye and Ear Infirmary. 1874.

OBITUARY.

J. Parker Milburn died in Washington, D. C., March 4th, after a brief illness, of pneumonia. Born in Alexandria, Va., July 20th, 1835, he was educated in his native city, and commenced his pharmaceutical career under the instruction of his brother J. A. Milburn. In 1855 he removed to Washington, where he entered into business in 1857. Well educated, honorable in his dealings, industrious and persevering, he soon won for himself the confidence of the community. He was one of the most active members of the Columbia Pharmaceutical Association and of the National College of Pharmacy.

Francis E. Suire senior member of the firm F. E. Suire & Co., Cincinnati, died there April 13th. The deceased had been long a sufferer, so that his death was not unexpected. He had been for many years in business in Cincinnati, and was honored and esteemed as a pharmacist and as a man.

James S. Aspinwall, formerly a prominent druggist in New York, died April 23d, at Douglastown, L. I., in his 67th year; he had been a member of the American Pharmaceutical Association since 1855, and served as its treasurer in 1856–57.

Henry Deane, F.L.S., died suddenly at Dover, April 4th, in the 67th year of his age, while on his way to visit his son in Hungary. He was born at Stratford, near London, on the 11th of August, 1807. At the age of eighteen he was apprenticed, for three years, to Joseph Fardon, at Reading, and afterwards became an assistant at John Bell & Co.'s, and attended then a course of lectures, at the Royal Institution, by Faraday and Brande. In 1837 he commenced business at Clapham, and on the formation of the Pharmaceutical Society, in 1841, became one of its first members. He became one of the Board of Examiners in 1844, and in 1851 was elected a member of the Council, with which he was connected for nearly twenty years, serving as vice-president from 1851 to 1853, and as president for the two years following. During this time the publication of a national pharmacopœia assumed a more definite shape, and Mr. Deane acted as chairman of the committee appointed by the Pharmaceutical Society until the Medical Council was formed for the purpose indicated.

In 1840 the Microscopical Society was formed, and Mr. Deane joined it on the foundation. The observations to which he was induced thereby led to a friendly intercourse with many of the most talented scientists of Great Britain.

At the formation of the British Pharmaceutical Conference, in 1863, he was elected President, and this position, as well as every other which he occupied, he filled to the satisfaction of all.

He possessed by nature an inherent love of science, and in youth and manhood improved every opportunity of acquiring sound scientific knowledge, thus making up for any deficiencies he might have had in consequence of inability to attend higher schools earlier in life. Simple in his habits, indomitable in pursuit of knowledge, thoroughly practical in matters of business, too high-minded to stoop to anything mean or dishonorable, Mr. Deane was possessed of that sound. practical sense which teaches that a man should never shirk his duty, that it would never be the duty of a man to perform a dishonorable act, and that consequently there is never any excuse for neglecting duty; his motto was: "There is nothing beneath the dignity of a man that is not dishonorable."

His professional attainments and moral worth were well known throughout England, and recognized in this country; the American Pharmaceutical Association and most of the local pharmaceutical societies in this country have placed his name upon their roll of honor, and in him lose one of their own members.

The remains of the deceased were interred in the village of Cheriton, near Shorncliffe, many friends, and officers and members of the different societies paying their last tribute of respect by being present at the funeral.

THE

AMERICAN JOURNAL OF PHARMACY.

JUNE, 1874.

MACLURA AURANTIACA, NUTTALL.

By Alexander King, G. P.

From an Inaugural Essay.

The proximate analysis of the bark of the root of this tree was undertaken in the hope of proving therein the existence of the coloring matters known as morin and morotannin. These acids were obtained by R. Wagner from the wood of *Morus tinctoria*, or fustic, and to them is due the value of this wood as a dye-stuff. Fustic has no use whatever in medicine, but is very largely consumed in the arts for dyeing yellow, and for this purpose alone large quantities are imported from the West Indies and South America. The *Maclura aurantiaca* is very abundant in the southern portions of our republic, and has been used to some extent as a substitute for fustic, some even asserting its superiority over the latter. A coloring matter sold under the name of aurantin has been looked upon as an extract from the wood of *Maclura aurantiaca*,* and is said to be much stronger than the yellow dye known as flavin, and also nearly five times the strength of Persian berries. In some portions of the South, the wood of *Maclura aurantiaca* is not only used for dyeing, but also for tanning. From these facts, as also from the physical properties of the wood of the *Maclura aurantiaca*, and its close botanical relation to *Morus tinctoria*, it was thought the same acid principles could be obtained from it. With this object in view, the following examination was made in the laboratory of the College, and the results show conclusively that these principles exist in *Maclura aurantiaca*, though not in large quantity.

Maclura aurantiaca, Nuttall, natural order Urticaceæ, is a small bushy tree, rising to the height of 25 or 30 feet, dividing near the

* See American Journal of Pharmacy, 1872, p. 299.

ground into numerous slender branches. Leaves petiolate, entire, five to six inches long, and two to three inches broad, ovate, acuminate, smooth and shining on the upper surface, on the under side minutely pubescent. Fruit, when ripe, resembles the largest oranges, composed of numerous coalesced, rather woody carpels, giving the surface a tuberculated appearance. Seeds imbedded in the fibrous mass, about the size of those of a quince.

In the Southern and Western States this tree abounds, and is well known under the names of osage orange and bois d'arc, or bow wood, the latter name being given it on account of the uncommon elasticity of the wood, thus affording the material mostly desired by Indians for bows. In some localities it is cultivated for hedges.

The root as obtained presented the following appearance: In various sized pieces, from $\frac{1}{4}$ to $1\frac{1}{2}$ or two inches in diameter, heavy and compact; the woody portion of a yellowish-white color; bark resinous, of a lighter appearance than the wood, where cut by the knife showing a green-black color, and having a slight bitter and astringent taste, freely exfoliating in thin papyraceous layers, of a handsome orange color.

Preliminary Examination.—Of the fresh bark a decoction was prepared by repeated exhaustion with boiling water. By the aid of paper pulp this was filtered, and then gave a clear brown-red solution, which was submitted to the following tests:

Iodine, added to a diluted portion, gave slight blue coloration, showing the presence of starch.

Upon the addition of two bulks of alcohol to a portion of the decoction, a copious precipitate was formed. This, being separated upon a filter, and treated with cold water, was found to be entirely soluble, the absence of pectin being thus shown. By reprecipitation from the aqueous solution by alcohol, separation from the fluid, and thorough washing with alcohol, this matter was obtained nearly white, and upon trial showed the characters of gum.

By Trommer's test, the decoction showed abundant evidence of the presence of glucose.

Upon the addition of ferric chloride to the decoction, a green-black coloration was produced, which was not evanescent upon being heated, thus proving the absence of gallic acid, and seeming to indicate the presence of tannin. When solution of gelatin was added to a portion of the decoction no precipitate was produced, thus showing that

gallotannic acid was not present. (According to Chevreul, moric acid is precipitated by solution of gelatin, but this is denied by Wagner. Further experiments made with moric acid obtained from *Maclura aurantiaca* proved that it is not precipitated.)

Upon addition of an alkali to the decoction, a bright yellow color was produced, this seeming to indicate the presence of moric acid.

To litmus the decoction gave a decided acid reaction.

With iodohydrargyrate of potassium no precipitate was produced.

When digested with animal charcoal, the decoction was entirely deprived of all bitter taste and coloring matter, alkalies not striking a shade of color with the liquid filtered from the charcoal. Experiments having in view the separation of the coloring principles from the charcoal gave no satisfactory results.

The decoction, upon evaporation, gave a soft extract, of a brown color, and having a sweet, astringent taste, with a trace of bitterness.

A cold infusion of the fresh bark, when heated to boiling, was not coagulated, showing the absence of albumen. With alkalies and ferric chloride the infusion gave the same reactions as the decoction.

By distillation of a portion of the fresh bark with water, a liquid was obtained having the odor of the bark, but being perfectly clear and transparent. This would indicate the presence of but a small amount of volatile oil.

The distillate gave no coloration with alkalies, showing the non-volatility of the coloring principles with the vapors of water.

Final Examination.—Eight troyounces of the fresh bark were cut up small and boiled with successive portions of water until exhausted. The dregs from this boiling were dried and then reduced to powder. The mixed decoctions were filtered by aid of pulp of paper, and evaporated to eight fluidounces. Upon the addition of alcohol, the gummy matter was precipitated, and separated by filtration, the filter being washed with alcohol, and the washings added to the liquid. This hydro-alcoholic solution was then evaporated to a soft extract and redissolved in about four fluidounces of alcohol. To this was added ether in sufficient quantity to precipitate the glucose as a thick syrupy fluid, from which the ethereo-alcoholic solution was separated. To this was added eight fluidounces of water, and by careful distillation the ether and alcohol were separated, the aqueous liquid then being set aside. After standing for two or three days a deposit of a brown color was found. This was separated upon a filter, the mother water

concentrated and again set aside. A second deposit was thus obtained, which was separated and mixed with the first. Upon applying some of the tests as laid down by Wagner for moric acid, this product was found to agree with them. The mother water gave strong evidence of containing morintannic acid. The substance supposed to be moric acid was then purified by repeated solution in alcohol and precipitation by water. After this treatment the product was quite small, being less than one gram. It was of a dark-greenish color, readily soluble in alcohol, giving a brown red solution, sparingly soluble in cold water, more so in hot. To litmus it gave a strong acid reaction. Upon applying the tests for moric acid, it was found to agree with them, except in that with ferric chloride. This test should give a garnet-red coloration, but the color produced was a greenish-black. This was ascribed to the presence of a small quantity of morintannic acid, as, according to Wagner, ferric chloride produces this coloration with moric acid, if the latter is contaminated with any morintannic acid. The following tests for moric acid proved its presence in the substance extracted:

1st. Sparing solubility in cold water.

2d. Free solubility in alcohol and ether.

3d. Precipitation from its alcoholic solution on the addition of water.

4th. Solubility in H_2SO_4, and precipitation on the addition of water.

5th. Lemon colored precipitate in aqueous solution by $SnCl_2$.

6th. Non-precipitation in aqueous solution by gelatin.

7th. Olive-green color of aqueous solution by $FeSO_4$.

8th. Yellow color by alkalies and alkaline carbonates.

Upon examination of the substance for bases, calcium and iron in the ferric state were clearly proven, thus showing it to consist of these metals with excess of moric acid. The presence of morintannic acid in combination with iron would explain the dark-green color of the moric acid.

The coloring power of the acid was tested by making an aqueous solution, and immersing in it a piece of mordanted cotton cloth. A fine yellow color was acquired, which, however, was not entirely permanent.

The mother liquor from which the moric acid was obtained showed, by the following tests, the presence of morintannic acid:

1st. Astringent taste.

2d. Free solubility in water, alcohol and ether.

3d. Yellow color upon addition of alkalies.

4th. Non-alteration in aqueous solution by H_3PO_4, H_2SO_4 and HCl, thereby distinguishing it from gallotannic acid.

5th. Green-black coloration with Fe_2Cl_6.

The dregs left after exhaustion of the bark with water, being dried and reduced to powder, were exhausted with alcohol by percolation, and yielded a resinous tincture, of a dark-red color. By pouring this into a large quantity of distilled water, the resin was copiously precipitated, and when collected, washed and dried was of a brown color and almost devoid of taste.

One gram of this resin treated with ether lost ·65 gram, showing that ether dissolved of it nearly two-thirds by weight.

In the fixed alkalies, the resin was entirely soluble, giving a deep-red color, from which solution it was precipitated by acids.

Five grams of the fresh bark lost, by careful drying, 1·8 gram., showing 28 per cent. of moisture.

Examination of the ash from a portion of the bark showed the following constituents: carbonic, phosphoric, sulphuric and hydrochloric acids; calcium, potassium, sodium, magnesium and iron.

Summary.—From the foregoing analysis of the bark of the root of *Maclura aurantiaca* its constituents may be said to be: starch, glucose, gum, resin, volatile oil in minute quantity, moric and morintannic acids.

A partial examination of the woody portion of the root gave evidence of the presence of coloring matter, though seeming in much smaller quantity than in the bark.

A VISIT TO SHAW'S GARDENS.

By Richard V. Mattison, G. P.

The Missouri Botanical Gardens, or Shaw's Gardens, as they are familiarly termed by the citizens of St. Louis, are situated at Shaw and Tower Grove avenues. A few days since, while visiting the city on business, opportunity was given the writer to pay a visit to this beautiful place, and, while spending a pleasant afternoon, a few notes were taken, which are here presented, with the hope that they will prove interesting enough to the readers to cause them, when visiting the "future great" city, to also pay a visit to the beautiful gardens adjoining Tower Grove Park.

Upon entering the gate the visitor is struck by the beautiful shrubbery upon every side, with handsome hedges bordering on paths leading to the *Arboretum*, or portion devoted to the culture of various forest trees.

This portion is intensely interesting to a lover of nature, even if not botanically inclined. Long rows of the handsome *Pinus strobus*, or American white pine trees, are upon either side of the walks, and these are interspersed with silver-leaved maples and thrifty oaks and elms, all carefully pruned and cared for.

Juglans cinerea and *niger* stand side by side with *Larix europæa*, while in turning in from the gateway a very fair specimen of English elm stands almost opposite the Scotch elm, or *Ulmus montana*, and the *Acer platanoides*, from Norway, leans complacently toward the *Acer saccharinum* of our own country, while scattered here and there are fine specimens of the Japanese maiden hair tree, *Salisburia adiantifolia*, intermingled with basswood, *Tilia americana ;* lime, *Tilia rubra ;* and white linden, *Tilia alba*.

Of the genus *Pinus* the collection is particularly fine; within a few paces of each other the writer noticed *Pinus strobus*, *P. austriaca*, *P. sylvestris*, *P. mugho*, *P. rubra*, *P. Benthamiana*, *P. edulis*, *P. rigida*, while in *P. inops* we recognize the familiar Jersey pine by the side of a specimen from the Pyrenees mountains.

Juniperus communis and *J. virginiana* are in company with the Chinese variety, *J. chinensis ;* while the cypress and white cedars of Lebanon are drawing sustenance from the same soil with *Salix alba*, and *Abies balsamea*, and *A. excelsa*.

The effect of this mixture of different foliage is very striking, and this alone is well worth coming some distance to see, while for botanical students the advantages which these groups afford for study are excellent.

Passing alongside of the conservatory, we noticed several interesting specimens; one of the *Laurus nobilis* is particularly fine, and reminds us of the leaves of the same variety frequently met with upon opening cases of Calabria licorice extract. Next to this are the lemon trees and common laurels from the Levant. Fine specimens of *Acacia longifolia*, *A. verticillata*, *A. melissina*, *A. Farnesiana*, *A. angustifolia* (New South Wales), and *A. cultriformis* (Australia), are also found here. The guava tree, *Psidium cattelianum*, and African Baobab, *Adansonia digitata*, are also here, with a fine female specimen of the *Cephalotaxus fortunei*.

One thrifty specimen particularly engaging our attention is the at present medicinally fashionable *Eucalyptus globulus*, and by its side the famous Banyan tree, *Ficus indica*. Equally interesting is a fine healthy specimen of *Camphora officinarum*, from Japan, the product of which is in such active demand at this season at our dispensing counters.

We notice also *Melia azederach*, which brings fresh to our memory our student days under Professor Maisch, and our inability to rightly place the habitat of this plant; to the right we find *Piper nigrum* with *Ficus elastica* (India rubber tree), and *Isonandra gutta* (gutta percha tree), neither of which are "Goodyear's patent." Further on we find probably forty specimens of cactus and other Mexican and South American plants.

Upon entering the Conservatory the first plant noticed is the New Zealand flax, *Phormium tenax*, and next to it is the Egyptian pepper plant; next, the Australian fig. A specimen of *Aralia angustifolia* nearly reaches the ceiling, and upon either side are fine specimens of *Coffea arabica*, and also one solitary specimen of *Cinchona alba*. The *Musa chinensis*, or sweet banana tree of China, is the central figure of the groups of plants in this room, and surrounding this are eleven species of *Ficus*.

The central room of the Conservatory is mostly devoted to ferns and palms. The most prominent are the Talipot palm (Ceylon), Royal palm (Cuba), Fan palm (China), Areca palm (New Holland), and Sago palm—of the latter, several fine specimens, besides one curious specimen from the Sandwich Islands. Intermingled with these are two fine specimens of *Aloe arborescens* from the Cape of Good Hope, and the banana tree, *Musa sapientum*, from the same locality, is found with the African dragon tree, and Chinese fragrant olive, *Ficus carica*, while numerous species of *Cassia* and screw pines, from Java and the Isle of Bourbon, with elegant bamboo cane, complete this group.

In the next room are several varieties of aloes, the most prominent being *Aloe socotrina* and *A. spiralis*; not less interesting are several specimens of ribbon sugar cane from Otaheite.

Fronting the Conservatory are the flowering and herbaceous plants, arranged in beds, each of which is devoted to a particular natural order. The beds are arranged concentrically with borders of *Arbor vitæ*, which gives the whole a very attractive appearance. We noticed

particularly the orders Solanaceæ, Plumbaginaceæ, Labiatæ, Verbenaceæ and Compositæ.

For the student of materia medica, botany, etc., these gardens offer advantages unequalled in this country, being greatly superior to the Government Botanical Gardens at Washington, and should be highly appreciated by the embryo druggists in attendance upon the lectures of the St. Louis College of Pharmacy. Should they profit by the suggestions thrown out from time to time by the eminent botanist of this city, Dr. Engelmann, we may hope for valuable contributions to the materia medica of the Western States. In conclusion, I hope all our Eastern pharmacists visiting here may find much pleasure and profit intellectually in a visit to Shaw's Gardens.

St. Louis. Fifth month 18th, 1874.

EXAMINATION OF FOUR SAMPLES OF CREAM OF TARTAR.

By Thomas C. Hilton, G. P.

Abtract from an Inaugural Essay.

Two of the samples were obtained from drug stores, Nos. 3 and 4 from groceries, all being recommended as perfectly pure. None answered the pharmacopœia test of being completely soluble in hot solution of potassa.*

The samples were analyzed by being treated with excess of ammonia, boiled, cooled and filtered; the undissolved portion was treated with dilute hydrochloric acid and any insoluble portion was removed by filtration.

The ammoniacal solution of No. 1 contained potassium, little calcium, and tartaric acid; the muriatic acid solution contained calcium and tartaric acid.

In the ammoniacal solution of No. 2 was found calcium, magnesium, potassium and tartaric acid; in the muriatic acid solution, calcium,

* This test appears to us as hypercritical, since cream of tartar cannot be completely purified from tartrate of calcium by recrystallization, and its purification by acids involves considerable trouble and loss. The British Pharmacopœia very properly admits a small quantity of the calcium compound, which does not appreciably interfere with the medicinal properties. If an *absolutely pure* cream of tartar is considered necessary, a formula for its preparation from the commercially pure article should be given.—*Editor Am. Journ. Pharm.*

magnesium, tartaric and carbonic acids, the latter producing effervescence.

No. 3 yielded to the ammoniacal solution calcium, magnesium, sodium, potassium, tartaric and hydrochloric acids; and to the muriatic acid solution calcium, magnesium, tartaric and carbonic acids; a small insoluble residue of starch remained behind.

No. 4 furnished an ammoniacal solution containing calcium, magnesium, postassium, sulphuric and tartaric acids; a muriatic acid solution containing aluminum, calcium, magnesium, tartaric and carbonic acids; and an insoluble portion consisting of starch. The sample was free from ammonia compounds.

The following are the results of the examination of these powders:

The first was found to be commercially pure, containing only potassium bi-tartrate and some calcium tartrate. It had a fine white appearance, and an agreeable acid taste.

The second, beside potassium bi-tartrate and calcium tartrate, contained magnesium carbonate, as an impurity. It was rather whiter than the first, probably due to the magnesia; it had also an agreeable acid taste, the magnesia being scarcely perceptible to the taste.

The third contained as impurities magnesium carbonate, sodium chloride and starch. This powder, though nearly as white as the first, did not have the fine appearance which characterized that sample, and had besides a different taste.

The fourth contained as impurities alum, magnesium carbonate and starch. This was the most impure of all, had a much darker appearance than any of the others, was inclined to cake and had a disagreeable musty odor, and a sour, somewhat astringent taste.

THE CONSTITUENTS OF DR. SAGE'S CATARRH REMEDY.

By Adrian Bowens, G. P.

Condensed from the Author's Inaugural Essay.

This popular nostrum is manufactured in Buffalo, N. Y., and is put up in bottles containing half an ounce of a dark green powder having a strong odor of carbolic acid and camphor, the taste being in addition salty and lastingly bitter.

For the purpose of obtaining a clue to the composition the following preliminary experiments were made:

The powder, heated on platinum foil, gave off vapors of carbolic

acid and camphor; an increased heat caused a portion of the powder to burn; the residue was treated before the blow-pipe, when, after the carbonaceous matter had been completely burned off, the powder finally fused, thus showing that there were present three distinct classes of bodies, viz., 1st, a volatile; 2d, an organic; and 3d, an inorganic body, non volatile, but fusible.

About a drachm of the powder was exhausted with distilled water, and the resulting filtrate evaporated to one-half; a portion of the liquid was tested for the presence of an ammonia compound, and then successively treated with hydrochloric acid, sulphuretted hydrogen, ammonia and sulphhydrate of ammonium, carbonate and phosphate of ammonium, all giving negative results.

The other portion was then evaporated and ignited, the residue dissolved in distilled water and tested in divided portions with perchloride of platinum and antimoniate of sodium, the latter only giving a white precipitate, proving the presence of sodium.

Another portion was examined for acids, but only one, hydrochloric acid, was found.

The residue left in the percolator was next exhausted with 95 per cent. alcohol, the percolate evaporated to a small bulk and allowed to stand for twelve hours; it was then found to have produced a large number of beautiful needle-shaped crystals of a yellow color and a bitter taste. Perrin's test gave the very characteristic and beautiful green spangles of an iodo-compound of berberina.

This exhausted powder was carefully examined by the microscope, and was found to be partly of a cellular structure and to contain starch; the latter was subsequently confirmed by the appropriate tests. This body I do not hesitate to call Hydrastis canadensis.

About two drachms of the catarrh remedy were subjected to distillation, which yielded a distillate having a strong odor of carbolic acid and camphor and separating gradually oily-looking globules, which were carefully separated and subjected to cold, after which they became solid and crystalline; this, together with the blue color produced on the addition of neutral sesqui-chloride of iron solution, is quite sufficient to distinguish carbolic acid from the closely allied creasote.

To another portion of the globules dissolved in water was added caustic potassa; immediately a white flocculent precipitate rose to the surface; this was separated by means of a filter and washed with hot

water, to remove adhering carbolic acid ; by the odor and tase it was found to be camphor.

The powder operated upon, after being exhausted with water and alcohol, was blue, and, upon examination, was found to contain indigo ; this, therefore, accounts for the green color of the original powder, the yellow hydrastis and blue indigo producing green.

A number of experiments were now made, by which it was found that a mixture in the following proportions very closely resembled Dr. Sage's Catarrh Remedy.

℞	Hydrastis canadensis, . .	gr. v.
	Indigo, ...	gr. ss.
	Camphorae pulv.,	
	Acidi carbolici, . . .	*aa* gr. ij.
	Sodii chloridi, ...	gr. l.

Powder the camphor by means of a drop of alcohol and mix with the salt, previously reduced to a moderately fine powder ; rub the indigo and carbolic acid together, mix with the salt and camphor, and lastly add the powdered hydrastis, and mix intimately, without much pressure, in a mortar.

The above manipulations I found necessary to follow in order to obtain the powder in the same degree of fineness as the commercial article.

MISTURA ASSAFŒTIDÆ.

By David Ackerman, Jr., G. P.

Condensed from an Inaugural Essay.

In the earlier part of the hot summer months a mixture was prepared by selecting 240 grains of fine tears of assafœtida. These were rubbed to a uniformly fine mass, then triturated with a fluidounce of glycerin to a thick paste, a fluidounce of water added, and the whole incorporated thoroughly by being well triturated. The dissolved portion was decanted, and the residue treated in like manner with the same quantity of glycerin and water, and mixed with the previous portion.

A portion of this was diluted to the officinal standard, which, after standing exposed to heat and light for a few days, assumed a faint reddish tint, which gradually deepened, on standing a week, to a deep red color.

A similar quantity of officinal mixture was prepared, of similar

quality of assafœtida, and at the same time as the foregoing. This, also, assumed a faint reddish tint, but remained sweet for several weeks.

The concentrated mixture also became oxidized, and assumed the red color of the former, after standing about the same length of time.

Another lot was prepared, using one-half the quantity of glycerin employed in the former, and adding instead another part of water, using the same mode of preparation as before.

About the same time some selected tears were reduced to powder by the process recommended by Mr. S. B. Proctor, namely, by softening the gum resin in a vessel, by means of a water-bath, and incorporating with it, by stirring, six per cent. of magnesia, and reducing it to powder. This, when mixed with water, gradually changed from white to green, the color continuing to deepen and change, until, at the end of ten or twelve hours, it was a blue black. The idea of this preparation was to obtain a powder of pure assafœtida, with which the mixture could be made by shaking in a bottle, without needing to resort to the mortar, and, as the powder prepared in this manner was recommended not to agglutinate in the manner of the ordinary powder, could be kept on hand as wanted, and a mixture formed with very little inconvenience; but my experience with it cannot recommend it.

Finding the last mixture with glycerin tending to spoil, I mixed with it a small portion of diluted acetic acid. This appeared to immediately arrest oxidation, and the mixture remained in a comparatively good condition for some time. This suggested the idea of using the following formula, which, so far as my researches and present knowledge go, has proved successful:

R.	Assafœtidæ (finest tears),	240 grs.
	Sacchari Albi,	90 grs.
	Acidi Acetici Diluti,	f℥i,
	Aquæ Fluv.,	f℥iij.

The assafœtida, after having been rubbed uniformly fine, was mixed with the sugar, and the two well rubbed together. Sufficient water was added to bring it to a paste, and the remainder of the water added in successive portions, until the soluble matter was all taken up, each portion being carefully decanted. To this was added the diluted acetic acid, the whole well shaken together, and kept pro-

tected from the action of the light, the heat being the same as in the previous experiments.

This at the end of three months was found to have retained all the characters of the fresh mixture, the deposit being easily mixed by a little shaking, the color being nearly white with a very faint tinge of pink, and the odor of the volatile oil being well developed and natural; altogether the general appearances indicating that the mixture had remained unchanged.

This mixture, properly diluted, has been dispensed with the sanction of the prescribing physician, and gave entire satisfaction, it containing nothing in any way detrimental to its therapeutic value. The author believes that the concentrated mixture as prepared above may be kept from year to year, and by diluting with three times its bulk of water will readily yield an assafœtida mixture equal in quality with the officinal. The selection of the finest assafœtida, the use of pure water, thorough trituration, exclusion of light, and protection from heat, are considered requisites for the successful preparation and keeping of the proposed mixture.

For the cleaning of mortars in which assafœtida has been used, the author recommends potassa solution, to be followed by a paste of bitter almonds, peach kernels, or cherry laurel leaves, and afterwards by soap and water.

ON LAWS INTENDED TO REGULATE THE PRACTICE OF PHARMACY IN THE UNITED STATES.

By Charles C. Fredigke.

With reference to the article on the same subject in the previous number of this Journal, and in order to explain more fully our position, it is necessary to enter into this matter more minutely.

In the statutes or codes of these States we can find nothing about pharmacy; we are there referred to as "dealers in drugs or any other person." This is in perfect accord with the position which the Government occupies towards the drug business, and *vice versa*. Pharmacy, not being recognized by the Government as a profession, not existing, as it were, must first be established before it can be regulated. The same is true with regard to medicine, with this exception, however, that when the Government needs a physician for its army, that physician must prove his qualification, not according to the standard of the incorporated college where he graduated, pro-

bably with the highest honors, but according to the standard of the Government; his diploma is not and cannot be accepted as a proof of professional qualification, it being received as evidence of academical acquisition of having arrived at his profession in a systematic manner; he must qualify according to the standard of the Government, which demands professional experience. Here, then, the Government does for the army what it must do for the people; but, before it goes about regulation, it must first establish, or at least recognize, such a thing as medicine or pharmacy, and maintain and enforce its Governmental standard; it cannot, even if it wished, recognize as such, the private standard of an incorporated college, which is only a private institute, maintained by private means and established for private ends.

Medicine, or the business of healing diseases, and pharmacy, or the business of selling drugs, occupy no other position towards the people than any other trade; they are not considered as professions in our country, though nobody can deny that they are, in the most noble sense of the term. Jurisprudence being considered a profession by the Government, it maintains a standard; for after a student has graduated at an incorporated or private school of law, he is not admitted to the bar unless he has proved his professional qualification, because the Government wants law and order, not according to what is law in England, France, Germany, etc, but according to its own standard, which, in this case, is its constitution. If a foreigner was ever so proficient at the bar in those countries, he could not be admitted to practice his profession here unless he had proved his qualification according to the Governmental standard. If medicine and pharmacy were professions, and so acknowledged by the Government, then a foreign physician or apothecary would not be allowed to practice unless he had proved his professional qualification according to our rules. An American physician or pharmacist, after he has graduated in our colleges, is considered entirely incompetent to practice his profession in France, England or Germany, unless he has conformed to the requirements of those States. We are received with the greatest politeness and respect, but practice we cannot; even if we step across our border into her Britannic Majesty's dominion of Canada, we cannot do this. There are those who say that this is a free country, that we have no king here, etc.; yet what is sauce for the goose is sauce for the gander. Besides, these and similar reasons are but sinister, having no weight in this matter.

All laws with regard to pharmacy, thus far enacted, are but contemptible compromises with free trade secured by the Constitution of the United States. As soon as a State establishes pharmacy, regulating it, etc., it also establishes a standard of qualification, and the diploma by a European university is no evidence of professional qualification at all, and cannot be admitted as such, as compared with our standard.

In the year 1830, the College of Pharmacy of the City of New York prosecuted several dealers in drugs, because they did not conform to the laws enacted by the Legislature of that State; they had to close their business, but appealed this case of interference to the Supreme Court of the United States, which Court declared these laws contrary to free trade; and the College of Pharmacy of New York had to pay an amount of damages, in consequence of which it came very near dying of anæmia.*

There are certain branches in the Government from which politics must be and ought to be excluded—they are the educational, financial and sanitary systems of a State—and since the effectiveness of such laws depends upon those who may be called upon to carry them out, and since their appointment rests with a political officer here, he is, as a matter of course, more influenced by party considerations than by the professional fitness of the aspirants.

But pharmacy must be either a profession or it must be a trade: if the former, then it forms an integral part of the sanitary system of the State. As a profession, it occupies a position distinct from any other business, free trade, free country and all to the contrary notwithstanding. If the State regulates pharmacy, it must, of neces-

* The above reference to the College of Pharmacy of the City of New York is erroneous. This College was not incorporated in the year 1830; its first charter was dated April 25th, 1831. The first law relating to the practice of pharmacy in that city was passed March 11th, 1839; it could not be enforced, because the institution, for whose benefit the fines were to be collected, was incorrectly named in the law, and for that reason was unwilling to prosecute; the New York College of Pharmacy had merely to register the apothecaries, free of charge, received no pecuniary benefit from this law, and could not prosecute under it; it could not, therefore, be liable for damages, even if the closing of several stores and the asserted legal decision had taken place, of which circumstances we have never been informed. The pecuniary troubles of the College arose from an entirely different cause, the lawsuit finally being decided *in favor of the College of Pharmacy of the City of New York*.—Editor Am. Journ. Pharm.

sity, do it in accordance with its Constitution; and, if this is impossible, then that Constitution must be amended. It cannot do it by circumventing these principles, for such attempts are known by their fruits, of which we have a sample in our registration acts—this lame imitation, in our free country, of a still lamer English precedent,—a lame imitation, because in England they examine and register pharmacists, and prosecute them for accidents to the last degree, on one hand, and on the other they allow a dealer in groceries to huckster all medicines, drugs nnd poisons most generally in use.

Pharmacy is a profession in France and Germany; its practice is the concern of the Government of those States, and is regulated according to its orders. The movement which has been going on during the last few years in Germany towards the "Freigebung des Apothekergewerbes" is generally misconstrued in this country; for it is no evidence at all of a tendency in the direction of that English precedent or our imitation of it. That movement has about as much influence on the existing order of the profession of pharmacy in Germany as our registration act on the existing order of huckstering drugs in this country; for it requires a "Beschluss" or an act of the "Reichstag" of the German Empire before those "Gewerbefreiheit" shriekers can reduce the profession of German pharmacy to a "Gewerbe," that is a trade. The German Empire is a constitutional monarchy; and it requires an act of Congress in our constitutional republic to elevate that trade to the rank of a profession. If they should accomplish it, however, then it is true that pharmaceutical supervision by the State will hardly mean anything else but to insure the thorough qualification of the pharmacist and his personal responsibility, but it will then also be true that a trade is no profession, and that when the dealer in groceries of Germany, the manufacturer of quack nostrums *et id genus omne*, stand on the same footing in all material points, then Continental Europe will form a striking example of English and American free trade.

The Governmental machinery of those States is slow, but solid and compact; nor can this be otherwise, because forty millions of people are living on an area not much larger than the State of Texas. It is not likely that German pharmacy will be reformed so as practically to be a free trade.

We here are and have been agitating to raise the free business of selling drugs to the rank of a profession, but the Constitution secures

free trade to every citizen; therefore, as we value free trade, it would be more consistent with our condition and position to let our calling take care of itself, because as soon as we claim to be more than dealers in drugs, we expose ourselves to exactions by the people, based upon assumptions to which at present they possess no right whatever. If they wish to saddle labors and responsibilities on us, there must be compensation, because we, a part of the people, cannot relinquish our civil rights to the benefit of the whole for nothing, for we are *dei gracia* sovereign citizens of a free country. The District of Columbia, the State of New York or Kentucky, cannot expect to obtain a system of pharmaceutical supervision at private expense. They possess no pharmacopœia, etc., and if pharmacy is so delicate a plant that it cannot be exposed to the free air, then its cultivation and acclimatization had better be abandoned, because it will be a costly failure. Neither does a State possess the right to exact qualification and responsibilities from one portion of her citizens in a business, while allowing another portion to sell drugs *ad libitum* without conferring on the former certain well-defined prerogatives on account of such qualification, etc.; but these prerogatives do not consist in keeping account of the sale of dangerous drugs for nothing, neither do they consist in paying more licenses and fees than the quack nostrum manufacturer or the retail or wholesale grocer-druggist, etc.; on the contrary, they must consist, for instance, in the prerogative that the latter is entirely enjoined from meddling with pharmaceutical preparations, on account of his incompetence, and when the people buy drugs from him in their assumption "to doctor" themselves—an assumption which they have been accustomed to so long that they consider it as a right—then they (the people) must be made to learn and know that they also assume all consequences of such doctoring, and that they are *ipso facto et jure* prevented from bringing suits for damages against such dealer in drugs.

These are the main preliminaries, if our position shall be defined with reference to free trade, qualification, etc.

Chicago, May, 1874.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

On the Examination of Oil of Peppermint a valuable paper has been published by Prof. Flückiger, in "Pharm. Handelsblatt," April

1st. The author calls attention to the fact that the optical behavior is no reliable criterion for the purity of volatile oils, the rotatory power of their proximate constituents being influenced and often reversed by various agents. Even the color reactions are more or less dependent upon the relative proportion of these compounds; but some are so characteristic that they deserve attention. Thus oil of peppermint is colored beautifully green or blue by a very small quantity of nitric acid, and it acquires at the same time a fluorescence, appearing copper-red by reflected light.*

The influence of chloral upon oil of peppermint has been noticed by Jehn.† The author found that his samples of the oil were colored but slightly brown or yellow by chloral hydrate, even after the application of heat; but anhydrous chloral alters the oil gradually at ordinary temperature. Of two samples which showed exactly the same behavior to nitric acid, one acquired, with one-fifth volume of anhydrous chloral, gradually a brown color, while the other turned green, the color being always purer and richer after a contact of some hours or days in the cold.

Concentrated sulphuric acid or bromine also show peculiar colorations; the reaction should be moderated by the addition of carbon bisulphide. Very remarkable differences are observed on agitating different samples of the oil with a saturated solution of bisulphite of sodium; one was colored green, then blue; the other rose-red, violet, &c.

The author suggests to those having authentic samples of oil of peppermint, to endeavor to ascertain the cause of this different behavior.

Ampelopsis hederacea. The juice of the berries was examined by Von Gorup-Besanez, who found the same constituents previously obtained from the leaves,* except glycolic acid.—*Buchner's N. Repert.* 1874, p. 181.

The Flowers of Tilia argentea, Desf., have been met with in Europe as a substitute for the flowers of *T. parvifolia* and *grandifolia*, Ehrh. The former species is cultivated in Europe as an ornamental tree; its flowers have larger bracts, which are of a greener color than the officinal, finely reticulate above, and underneath densely covered with

* See *American Journal of Pharmacy*, 1871, p. 164.

† Ibid., 1873, p. 447.

* See *American Journal of Pharmacy*, 1872, p. 165.

stellate hairs, which readily separate, when dry forming a woolly irritating powder; the flowers have, particularly in the fresh state, an odor reminding of hyacinth and lily of the valley.—*Pharm. Post*, 1874, *No*, 9, from *Schweiz. Wochenschr. f. Ph.*

Oil of Dill. R. Nietzki obtained from the fruit of *Anethum graveolens* a volatile oil, which commenced to boil at 155° C. (311° F.), the boiling point rising gradually to 260° C. (500° F.) About ten per cent. of the oil consists of a carbohydrogen $C_{10}O_{16}$, having the boiling point 155 to 160° C., 60 per cent. boiling at 170—175° C. (338—347° F.), of the same composition, and 30 per cent. with the boiling point 225—330° C. (437—446° F.), composition $C_{10}H_{14}O$, and identical with carvol. The odor of the first portion of carbohydrogen reminds of turpentine; that of the second portion resembles oil of mace, but when mixed with a little carvol, the characteristic dill odor is at once produced.—*Archiv d. Pharm.*, 1874, *April*, *p.* 317.

A Simple Contrivance for Filtering at Elevated Temperatures has been suggested by A. Horwarth, and successfully tried in the laboratory of Prof. Schneider, in Vienna. A soft lead pipe, about one centimeter in diameter, is coiled closely around a glass funnel, so that the windings remain in close contact; both ends of the pipe are sufficiently long, the upper end being used for admitting the vapors from a retort or flask, and the lower end being connected with a suitable receiver. By using liquids distilling at different temperatures, and passing their vapors through the coil, any desired temperature may be maintained in the funnel.—*Pharm. Centr. Halle*, 1874, *No.* 11.

New Method of Administering Iodine. P. Collas reports that Prof Boldeau has obtained very satisfactory results by using, in the hospital of Beaujon, an iodated albumen, prepared as follows: A solution of albumen is continually agitated with iodine in very fine powder, or dissolved in a suitable vehicle; the liquid assumes at first a deep brownish-black color, which disappears after several hours, and starch is then not colored blue by it. The solution is now evaporated to dryness, at a low temperature, and made into pills, each containing five milligrams ($\frac{1}{13}$ grain) of iodine, of which five or six may be taken in 24 hours.—*L' Union Pharm.*, 1874, *April*, *p.* 97.

AILANTHUS GLANDULOSA AS A REMEDY FOR DYSENTERY.*

In a recent issue of the *Archives de Médecine Navale* is published an official note, addressed by Dr. Robert, who is the medical chief of the naval division of China and Japan, to the inspector-general of the health service in the French navy, calling attention to a drug used by Chinese physicians in the treatment of dysentery. It consists of the root bark of the *Ailanthus glandulosa*, Desf., a plant belonging to the natural order Simarubaceæ, very common in the North of China and less so in Japan. It is also frequently cultivated in France and Italy for the purposes of shade, whilst its leaves have been used as food for silkworms.

The bark of the root is the only part employed. It is white when fresh, resembling mallow root, but it acquires a greyish tint in drying. It is fibrous and loose in texture, and is almost without smell. An infusion of this bark however exhales a slightly nauseous odor, and posseses an excessive bitterness resembling that of sulphate of quinia. The Chinese physicians employ the root in the fresh state only; but Dr. Robert, having been compelled to use some that had become dry, found no sensible difference in its action in the two states.

For administration, 50 grams weight of the fresh root is cut into very small pieces and triturated with 75 grams of hot water for a few minutes in a mortar, in order to soften the bark, and then strained. A teaspoonful of this strong infusion is administered as a dose morning and evening, alone or in a cup of tea. Taken in this form, it provokes vomiting. The medicine is administered in this manner during three days, the patient being kept upon full diet. After that time the ailanthus is omitted and the diet is altered to broths until health is restored. If after eight days' treatment the patient is not cured, the Chinese physicians recommence the use of the ailanthus; but Dr. Robert states that he has not met with a single case in which this resumption has been necessary, although he has had under his notice some where the disease had lasted several months, as well as others of more recent origin.

The principal symptoms which follow the administration of the ailanthus are said to be nausea, and sometimes vomiting, followed by a temporary lowering of the pulse. The disappearance of blood from

* Abstract of a paper in the *Repertoire de Pharmacie*, vol. ii. p. 237.

the evacuations commences on the first day and is complete on the second; the colic ceases a little later. The effect of the drug upon the color of the evacuations is variable. Dr. Robert sums up by expressing his opinion that the administration of the *Ailanthus glandulosa,* as witnessed by him in China and Japan, gave superior results to that of ipecacuanha, astringents, alone or combined with opiates, or calomel. The remedy, he says, is only known to a portion of the Chinese physicians, a circumstance which he attributes to their custom of preserving the secrets of their practice.

Dr. Robert states that the root of the *Ailanthus glandulosa* is not usually to be obtained in the Chinese pharmacies; but that in the dialect spoken at Shanghai it is called "hiang" or "siang-tcham," and in the mandarin dialect spoken at Pekin and Tiensin, it is named "tchau-tchoun," which latter agrees with the name attributed to it by Dr. F. Porter Smith in his "Contributions to the Materia Medica and Natural History of China" (p. 6). The latter writer points out that the *Pen Ts'au* includes *Ailanthus fœtida* or *glandulosa* with *Cedrela odorata* and other trees distinguished by their odor, under the common name "Chun-chu." He further remarks that "this species of *Ailanthus* grows all over China, and is met with on the walls of Pekin. The leaves are used to feed silkworms, and in times of scarcity are used as a vegetable, though much less agreeable than the young leaves of the *Cedrela.* They are said to be slightly deleterious, and are used as astringent, anthelmintic, and deobstruent remedies. They are given in diseases of the lungs, dysuria, tabes infantum, menstrual disease, spermatorrhœa, and fluxes in general; and a wash is made to promote the growth of the hair and to wash scabious eruptions and ulcers. In most of these cases the bark both of the tree and the root is used, having precisely the same properties. The bark of the mangrove tree is sometimes adulterated with this inferior substitute." But he does not mention its use in dysentery.

In the non-officinal portion of the Pharmacopœia of India, the *Ailanthus Malabarica*, D. C., a large tree of Ceylon, Malabar, and Concan, is mentioned as yielding an aromatic gum resinous substance, known by the Tamul name of matti-pawl, which is used medicinally, especially in dysenteric cases and as incense. Dr. Gibson regards it as a good stimulant in bronchitic affections. The bark is rough and very thick, with a pleasant and slightly bitter taste; it is studded with bright garnet-looking grains, apparently of a resinous nature,

but not burning like resin or dissolving either in spirit or water. A specimen of the extract prepared from this bark may be seen in the Museum of the Pharmaceutical Society.

The bark of another species of *Ailanthus*, *A. excelsa*, is mentioned as being used by the natives in dyspeptic complaints, and esteemed as a powerful febrifuge. This bark was the subject of an exhaustive treatise by Mr. Narayan Daji, read before the Grant College Medical Society of Bombay, in which its properties were attributed to the presence of ailanthic acid. *Pharm. Jour.* (*Lond.*) *May* 9, 1874.

DETERMINING THE AMOUNT OF METHYL ALCOHOL IN COMMERCIAL WOOD SPIRIT.

By G. Krell.

The wood spirit of commerce, even when highly rectified, consists of a mixture in varying proportions of different substances, some of which have not yet been studied. Methyl alcohol is not always the chief constituent, but for technical purposes it is very important to know how much it does contain. The methods heretofore in use, such as boiling point, specific gravity, action toward sulphuric acid, caustic soda, salt solution, water and so on, give almost no idea of the real amount of methyl alcohol in the wood spirit. This fact induced the author to institute some experiments for finding the simplest possible method of determining the amount of methyl alcohol in wood spirit. He has arrived at the conclusion that the conversion of wood spirit into methyl iodide is best adapted to give a clue to the quantity of methyl alcohol in it.

By using the biniodide of phosphorus instead of iodine and phosphorus in the apparatus below described, it is easy to conduct each single investigation always under the same circumstances. Although the quantity of methyl iodide obtained gives no absolute report of the quantity of alcohol present, because such reactions never go off so smoothly as to produce the theoretical yield, yet this method furnishes the means of accurately comparing different specimens of wood spirit. If, for example, pure absolute methyl alcohol be subjected to this treatment, the yield of methyl iodide produced by this may be compared with that obtained from the wood spirit to be tested, and the proportions will show how much methyl alcohol is in the latter.

The principal impurity of methyl alcohol, aside from adulterations, is aceton. The latter, if absolutely pure, when acted upon by the biniodide of phosphorus produces no substance similar to methyl iodide; at the temperature of 100° C. a few drops of a distillate is formed, which on shaking with water almost entirely dissolves. Aceton does not exert any perceptible influence on the yield of methyl iodide, as may be proved by experiment.

It acts differently with another very common impurity of wood spirit, methylacetic ether. With biniodide of phosphorus this substance also produces some methyl iodide, and the results of the experiments show that the methyl of the methylacetic ether is also converted into methyl iodide. This ether, when pure, on being treated, as proposed, with biniodide of phosphorus, yields at 100° C. a distillate, about half of which is soluble in water; the insoluble portion of the distillate is methyl iodide. This method of testing is, of course, influenced by this, but when we consider that, in using wood spirit for methylating anilin, the methylacetic ether also aids in the action just in proportion as it contains methyl, we may disregard the error which this causes when testing for most practical purposes.

There is also a very simple method of determining the quantity of methylacetic ether in wood spirits, by adding a measured quantity of normal soda solution, warming slightly and titrating with normal hydrochloric acid. The difference in the amount of acid required from that indicated by the soda added furnishes the means of calculating the quantity of ether present.

The other impurities in wood spirit are mostly unstudied hydrocarbons, and are present only in inconsiderable quantities. They produce, with biniodide of phosphorus, resinous bodies that yield no distillate at 100° C. Hence there is no danger of the methyl iodide being contaminated by their products, and experiments prove it.

The tests with wood spirits are conducted as follows:

In a glass flask of about 100 grams capacity are placed 30 grams of dry biniodide of phosphorus, PI_2, and the flask closed with a double bored stopper, preferably of glass. Through one of these openings is inserted a small dropping tube holding five c. c.; through the other is a tube bent at an obtuse angle—the latter, when surrounded with a good cooler, to condense and return the vapors, and afterward, by inclining the flask, for distilling it off.

Exactly five c. c. of the wood spirit to be tested are placed in the

dropping tube at a temperature of 15° C., and allowed to drop slowly upon the iodide, about ten drops per minute. When all the wood spirit has been admitted, the flask is warmed for five minutes, in boiling water, the cooler being placed upright. The apparatus is then inclined in such a way that the distillate will run out, and the mixture distilled on a water bath as long as anything goes over. Toward the end of the experiment the whole flask must be immersed in the boiling water. The distillate is caught in a glass receiver, or, better, in a graduated glass tube, narrow at the bottom, so that the narrow portion may be very accurately graduated. The receiver should hold 25 c.c., and, after the distillation, is filled up to the 25 c.c. mark with water, a part of the water being used to rinse out the condenser. If transparent crystals of iodide of phosphonium are deposited in the cooler, the water must be added carefully, drop by drop. The methyl iodide collected in the receiver is shaken with water and its volume read off at 15° C. Five cubic centimeters of absolute, chemically pure methyl alcohol, prepared from methylbenzoic ether, gave 7·19 c.c. methyl iodide, which quantity corresponds very nearly with the theoretical yield. By comparison with the quantity of iodide of methyl obtained from the specimens tested, the quantity of methyl alcohol can be calculated by simple proportion; or, if the space of 7·19 c. c. in the receiver be divided in 100 equal parts, the percentage may be read off directly.—*Journ. of Applied Chem.*, *May*, 1874.

SANTONINIC ACID.

By O. Hesse.

Santonin is the anhydride of an acid, of which hitherto only the salts have been known. The free santoninic acid is obtained by adding an excess of dilute hydrochloric acid to a cold aqueous solution of the sodium salt, and shaking at once the milky liquid with ether. From the ethereal solution granular crystals soon separate out, which are recrystallized from alcohol.

Santoninic acid, $C_{15}H_{20}O_4$, forms white, rhombic crystals, which are not colored yellow by exposure to light. It is sparingly soluble in cold water, more freely in boiling water, and readily in alcohol, but not very freely in ether. Its aqueous solution has a strongly acid reaction, and, when hot, decomposes the carbonates of sodium and calcium. The santonates have an alkaline reaction, and are not col-

ored red by alcoholic potash. When the acid is heated to 120°, it is resolved into santonin and water; the same decomposition is produced by adding sulphuric acid to its aqueous solution; hydrochloric acid acts in the cold in a similar way, but more slowly, while by adding either of these acids to a hot solution of a salt, santonin is at once precipitated.

Cannizzaro and Sestini have lately shown that when santonin is heated for some time with an alkali, it is converted into the stable santonic acid, which is isomeric with santoninic acid, but cannot be reconverted into santonin.—*Journ. Chem. Soc.*, *March*, 1874, from *Deut. Chem. Ges. Ber.*, vi, 1280—1282.

OLD AND NEW REAGENTS FOR COMMON PHENOL.

By Egidio Polacci.

The author points out the distinctions between the blue color produced by phenol and hydrochloric acid with a chip of fir-wood and that given by hydrochloric acid alone. The violet coloration given by perchloride of iron is indecisive as being common to all the phenols. The blue coloration given by the successive action of ammonia and a hypochlorite is less general. As this method turns on the conversion of the phenol into anilin by the action of ammonia, the test is only available where the absence of anilin is satisfactorily demonstrated. Cresylic acid and thymol yield similar results. In complex organic fluids the reaction may fail. The conversion of phenol into picric acid by the action of nitric acid cannot be used for the detection of the first mentioned body, since the same result is obtained with a great variety of bodies. The author pours into a narrow test-tube concentrated sulphuric acid to the height of four or five centimetres, and adds cautiously the aqueous solution containing the phenol, in such a manner that the two liquids may not mix. A formation of three colors is soon perceived at the line of contact of the two liquids. These three are soon reduced to one, a vermillion red, which, setting out from the plane of division, diffuses itself through the entire mass of the phenol solution. This color is stable, and remains unaltered for months. If the red liquid is removed from the acid and treated with an alkali, it becomes yellow without losing its transparency. This reaction serves to detect one part of phenol in about 2000 of water. Another method is as follows:—In a well glazed porcelain crucible is put a

little of the most concentrated sulphuric acid, to which is added a relatively minute portion of bichromate of potash. The mixture is well stirred so that the liberated chromic acid may be uniformly distributed through the sulphuric acid. A small drop of the liquid under examination is placed upon the acid mixture, which immediately gives a brown coloration at the point of contact. If the proportion of phenol is larger than one part in 30,000 the coloration is accompanied with a chocolate-brown precipitate. The author has also examined Landolt's test, which consists in adding to the suspected solution bromine water in slight excess. If phenol is present a yellowish-white precipitate is produced. The sensibility of this reaction extends to one part in 45,500. As Landolt has remarked, precipitates more or less similar, are produced by oxybenzoic acid, the homologues of phenic acid, anilin, toluidin, quinia, quinidih, cinchonia, strychnia, narcotina and morphia. The author considers that the yellowish-white precipitate may be recognized as tribromo-phenol by the following reactions:—It has a special odor, slightly recalling that of the hydride of salicyle. It is insoluble in acids, but soluble in alkalies, ether, and absolute alcohol. A very small quantity of water completely separates tribromo-phenol from its alcoholic solution. If carefully heated on platinum foil it may be volatilized unchanged without leaving a residue. But if the heat is strong the compound is decomposed and burns with a smoky flame, evolving much bromine, and leaving a carbonaceous residue. A portion placed in a porcelain capsule, and treated with sulphuric acid and bichromate of potash, produces a chocolate-brown color, with the escape of bromine vapors. If the bichromate is dissolved in water, and the experiment conducted in a glass tube, with the application of heat, the liquid takes a fine green color. If gently heated with nitre and concentrated sulphuric acid it forms oily drops of a fine red color, which burn, leaving a bulky carbonaceous residue.—*Chemical News, May* 8, *from Gaz. Chim. ital.* 1874.

RESEARCHES ON CALAMUS OIL.

By A. Kurbatow.

When this oil is submitted to fractional distillation, the boiling point rises from 140° to 280°. The fraction passing over at 170°, when carefully redistilled, gave a considerable quantity of product boiling at 158°—159°. The formula, $C_{10}H_{13}$, represents the compo-

sition of this hydrocarbon. It has a turpentine-like odor, is transparent, soluble in alcohol and ether, and at 0° has a specific gravity 0·8793. It combines with hydrochloric acid, forming a crystalline mass which melts at about 65°.

By rectifying the oils of higher boiling point, a bluish liquid was obtained which boiled at 250°—255°; but after treatment with sodium the color disappeared, and the hydrocarbon boiled at 255°—258°. It has the formula, $C_{10}H_{16}$, but does not combine with dry hydrochloric acid.—*Journ. Chem. Soc., March*, 1874, from *Deut. Chem. Ges. Ber.*, vi. 1210.

PYROGALLIC ACID AS A REAGENT.*

By M. Schlagdenhauffen.

The action of pyrogallic acid upon the alkalies and the alkaline earths is well known. It forms, with the caustic alkalies, dark-brown colored compounds, and with lime water a splendid violet solution, which finally deposits a black product by a decomposition not yet investigated. With the carbonates and bicarbonates analogous results are obtained. A few drops of a ten per cent. solution of pyrogallic acid, added to bicarbonate of magnesia or bicarbonate of lime in sufficiently dilute solution to remain at first uncolored, gives, after six hours, an abundant black deposit. This reaction the author has made use of in the examination of alkaline mineral waters, a yellow coloration being produced at once in the water most impregnated with carbonate, followed, after ten or twelve hours, by a plentiful black precipitate, whilst a negative result, amounting to only a yellow or feeble brown color, has been found to indicate the absence of soluble carbonates. The presence of calcareous carbonates in potable waters may be detected by adding a small quantity of pyrogallic acid in aqueous or alcoholic solution to a few cubic centimetres of the water to be examined.

The alkaloids have also the property of coloring pyrogallol brown, or at least a deep orange yellow, but the reaction is not manifest in less than a dozen hours. This character distinguishes the organic bases from neutral crystallizable bodies and glucosides, the latter remaining perfectly inactive in the presence of pyrogallic acid; the heat of a water bath increases the depth of color. Alcoholic solution

* *L'Union Pharmaceutique*, vol. xv., p. 5.

of mercuric chloride, added to the colored liquid containing the alkaloid, causes immediately a black deposit, but a pyrogallic solution containing a glucoside or neutral crystalline body is not colored by the addition of the bichloride.

Some experiments, based upon this reaction, were made to define the relative alkalinity of the alkaloids. A gram of pyrogallic acid dissolved in 10 c.c. of alcohol, added to 2 c.c. of a saturated alcoholic solution of mercuric chloride, was used as the reagent. Two or three drops were placed in a porcelain capsule, and a few crystals of the substance to be examined added. In some cases the crystals were blackened immediately upon contact; others at first took a light tinge, and became more colored after a few minutes; whilst some alkaloids only became colored after a slight elevation of temperature. The following represents the result of the experiments:—

	In the cold	With heat.
Atropia. . .	Black, immediately	Black.
Veratria . .	" "	"
Codeia . .	Brown, immediately	"
Quinidia . .	" "	"
Cinchonidia .	" " . . . . ,	"
Thebaina .	Pale yellow; brown after ¼ of an hour	"
Narcotina . .	Ditto ditto ditto	"
Papaverina .	" " "	"
Brucia . .	No change at first; brown after ¼ of an hour . . .	"
Strychnia . .	Ditto ditto ditto	"
Delphinia . .	" " "	"
Morphia . .	" " "	"
Quinia . . .	" " "	"
Cinchonia . .	" " "	"

In operating with neutral crystallizable bodies and glucosides, and heating the mixture, the black coloration was never obtained, and even the residue never presented a color darker than that produced by a mixture of the body with the bichloride or pyrogallol used separately.

Picrotoxin, phlorizin, salicin, santonin, æsculin, coumarin, amygdalin, meconin, and digitalin, in no instance resembled the alkaloids in their behaviour. It would therefore appear that the pyrogallo-

mercuric, like the guaiaco mercuric test, can be used to distinguish the glucosides and neutral crystallizable bodies from organic bases, and thus facilitate analytical research.

In replacing the mercuric chloride by ferric chloride analogous results are obtained. The solution of pyrogallate of iron used by the author in his experiments contained only a minimum quantity of metallic salt, the addition of a trace of ammonia or caustic alkali to which gives rise to a deep blue-violet color. This very delicate reaction of the salts of peroxide of iron, recently indicated by M. Jacquemin, can also be used to recognize the presence of alkalies. The solution which gave the author the best results was composed of—

Pyrogallic acid, . , . .	0·50 gram.
Water, ...	5 c.c.
Alcohol.	5 c.c.
Perchloride of Iron, . . .	0·0001 gram.

The pyrogallate of iron so prepared, colors blue crystals of strychnia brucia, morphia, codeia, and all the other alkaloids. Crystals of narcotina are colored difficultly, and those of narceia acquire only a scarcely appreciable violet tint, but upon heating them in a water bath they both yield a very deep bluish violet residue The glucosides and neutral bodies give no coloration in the cold, and in the heat no deeper tint than pyrogallate of iron heated separately. A solution of cupric chloride added to pyrogallic acid gives analogous results, the coloration in that case being a nearly black brown.

The author considers that all these reactions are explained by the oxidation of the pyrogallic acid under the influence of various metallic oxides. The addition of an alkali, alkaline salt or free alkaloid to one or other of the foregoing solutions, produces, in the presence of a metallic chloride, a double decomposition; there is formed an alkaline chloride or a hydrochlorate of an alkaloid and a more or less decided coloration, resulting from the oxidation of the pyrogallic acid by the metallic oxide at the moment when the double decomposition takes place.—*Pharm. Journ.* (*Lond.*), *March* 28, 1874.

ACTION OF CHLOROFORM ON POTASSIUM PHENATE.

By J. Guareschi.

When an alcoholic solution of phenol, mixed with caustic potash, is evaporated to dryness, and chloroform is poured upon the residue while still hot, a splendid red-purple color is immediately produced.

The potash should not be in excess, and the temperature not very high. This reaction is capable of detecting 0·1 mgm. of phenol.

The coloration is probably due to the formation of rosolic acid, which is, in fact, known to be produced by the action of iodoform, formic acid, etc., on potassium phenate.

The action of potassium phenate on chloroform does not give rise to any compound analogous to the triethylic formate, or orthoformic ether, which Kay obtained by treating chloroform with sodium ethylate.—*Journ. Chem. Soc., March*, 1874, from *Gazetta chimica italiana*, iii, 401.

MATERIA MEDICA NOTES.*

By E. M. Holmes,

Curator of the Museum of the Pharmaceutical Society.

Koegoed.—At the Brighton meeting of the British Pharmaceutical Conference in August, 1872, a paper was read by Mr. Keyworth, of Hastings, upon a drug called koegoed, the botanical source of which was said to be unknown. Having had occasion lately to turn to Dr. Pappe's Medical Flora of the Cape of Good Hope, I found that the same name, although spelt in a slightly different manner, was applied by the Hottentots to the *Mesembryanthemum tortuosum*, a plant belonging to the nat. ord. Ficoideæ. Not having been able to detect any leaves in a specimen given to me by Mr. J. Moss, I wrote for a further supply to Mr. Keyworth, who courteously complied with my request. In the parcel forwarded to me by that gentleman, I found a few leaves of oblong-ovate shape which exactly corresponded in appearance with those of a specimen of the *Mesembryanthemum tortuosum* in the British Museum. Dr. Shaw, who is well acquainted with the Flora of South Africa, happened to be in the British Museum while I was engaged in comparing the specimens, and immediately recognized the Koegoed as the form in which that plant is used by the Hottentots, remarking that he had seen it growing in Bushmanland, but considered it to be rather a rare plant. There can be no doubt, therefore, that the Koegoed is the produce of *M. tortuosum*, of which it is probably the root and procumbent stem.

Three other species of *Mesembryanthemum* are used medicinally

* Read at the Evening Meeting of the Pharmaceutical Society of Great Britain, Wednesday, April 1st, 1874.

by the Hottentots, but these have leaves of a different shape to those of the Koegoed, the leaves of the *M. edule* and *M. acinaciforme* being scimitar-shaped, and those of *M. crystallinum*, which is well known in this country as the ice plant, being broadly ovate and amplexicaul. The expressed juice of the first two species above mentioned is extensively used in the south of Africa, in dysentery, as a gargle in malignant sore throat, and in the form of a lotion for burns and scalds.

The Koegoed, besides being used as stated by Mr. Keyworth, as a sedative for cattle, is chewed by the Hottentots as an intoxicating agent, and appears to possess narcotic properties which deserve further investigation.

Some Adulterations of Crude Drugs.

Cascarilla.—Notwithstanding the great care which is exercised by most wholesale buyers in selecting good samples at the drug sales, and in the examination of all parcels which enter into stock in their warehouses, spurious drugs are occasionally overlooked and find their way into the retail trade. This spurious cascarilla (of which a sample is upon the table) presents an instance in point. It was imported from the port of Nassau, in the Bahama Islands. A lot of cascarilla, consisting of four serons selected from a fine sample, was purchased by one of the first London houses. Of these serons, three contained the true bark; but the fourth, which appeared to contain unusually fine specimens, and which were sent out as such, was afterwards found to consist almost entirely of the spurious bark.

At first sight this bark strongly resembles cascarilla in appearance, but may be distinguished thus:—The periderm or outer layer of bark does not readily peel off, and is of a fawn color—not white. On the inner surface the bark is of a reddish tint and is furnished with a number of straight, closely-packed, raised lines, which give it a striated appearance, the inner surface of cascarilla being smooth. The taste is not aromatic but astringent, and almost without bitterness. The color of the bark is also of a more reddish tint than that of cascarilla. From the general appearance and microscopical structure of the bark it seems probable that it may belong to a plant of the same genus as the cascarilla.

Most of the species of croton occurring in the Bahamas appear to have aromatic barks, but in the excellent paper published in the *Pharm. Journ.* by Dr. Daniell upon the cascarillas of the Bahama

Islands, one species described under the name of *Croton lucidum*, L., is said to have in the fresh state a slightly bitter and somewhat astringent bark. It further resembles the spurious bark in the "dull red color of the cortical layers." It is said to be used by the negroes of New Providence to mix with the bark of the true cascarilla, under the idea that it improves the curative powers of the latter, and it is known by the name of the false sweetwood bark, sweetwood being the name applied by them to the true cascarilla. Hence this bark may have been mixed with the cascarilla by those who collected it, for the above-mentioned purpose. From the fact of its occurring only in one seron, however, it appears more probable that it was an intentional adulteration. Unfortunately, there are no specimens of the bark of *Croton lucidum* either at Kew or the British Museum, so that I have not been able to ascertain with certainty (as might be done by the use of the microscope) the identity of this bark with that of the *Croton lucidum*, L. I trust, however, in the course of the year to receive further information concerning it from Jamaica.

With regard to its medicinal properties, the bark appears to cause sickness without producing either disagreeable effects.

Mr. A. H. Squire, who first brought this bark under my notice, has examined its behaviour with various reagents, and finds that the infusion and tincture are darker in color than those of cascarilla; that tincture of galls gives a scarcely perceptible cloudiness, and that tincture of perchloride of iron turns the tincture almost black, while the infusion is only slightly deepened in color by it, and that acetate of lead gives an abundant precipitate with both tinctures. The tincture of cascarilla is not altered in appearance either by tincture of perchloride of iron or tincture of galls.

Arnica root.—In a specimen of arnica root which was recently sent to me for examination (by Messrs. Wright, Sellers & Layman), I found only fifty per cent. of the genuine root, and in a second sample only one per cent. of arnica. In both samples there were two or three different kinds of roots, but the chief adulterant in both cases were the same.

The physical characters of this spurious arnica are so strongly marked that it is not difficult to recognize it. For the sake of comparison, before giving the distinctive characters of the spurious drug, it may be well to recall the description of arnica.

What is commonly known as arnica root consists of a slender rhi-

zome or prostrate stem having a number of rootlets arranged almost in a line along the under surface. In a transverse section the cortical portion is found to be hard, and of a yellowish white color, while the central portion or meditullium is soft, and of a dirty greyish or brownish-white color. The odor is distinctive, and the taste has a peculiar acridity and an after flavor which may be likened to the odor of rancid cocoa-nut oil.

The spurious drug may be at once recognized by the fact that it is not a rhizome, but a root which evidently descends vertically into the soil, as it is surrounded on all sides by rootlets. In size it varies from that of arnica to five or six times as large, in some pieces appearing præmorse, and in others suddenly narrowed and elongated. The cortical portion resembles that of arnica in color, but the meditullium, or central portion, is of a purple tint, and presents a discoid appearance, two characters which I believe are met with in but few roots. When the root is soaked in water the purplish meditullium swells up and loses its discoid appearance. The taste is astringent and somewhat aromatic, faintly resembling that of cloves. Thinking it possible that the root might belong to some plant having leaves like those of arnica, and that it might have been gathered in mistake for arnica, I examined several species of *Hieracium*, which grow in similar situations, and resemble arnica in having composite flowers and entire leaves, but in none of them had the meditullium a purple color. The astringent taste of the spurious arnica then led me to suspect that it might be the root of a rosaceous plant, and the clove-like flavor seemed to indicate the root of *Geum urbanum,* an indigenous plant well known to herbalists in this country, under the name of Avens, or Herb Bennet. Having procured specimens of the latter from Covent Garden, I found that the appearance, structure and taste were identical, and have therefore no hesitation in referring the spurious arnica root to that plant. The other kinds of root were present only in small quantity, and appear to have been accidental. One is a slender rhizome of a paler color than that of arnica, and has a white discoid meditullium, and a bitter taste; another is evidently that of a species of *Vaccinium;* a third looks very like valerian, but is odorless; a fourth closely resembles bistort root.

From all the spurious roots the leaves have been carefully removed, while an unusual quantity of arnica leaves are mixed with the roots, evidently for the purpose of producing the impression that the root

is genuine arnica. That the adulteration is an intentional one is also evident from the fact that the leaves, flowers and general habit of the two plants are totally distinct: arnica having entire leaves, a simple stem, and composite flowers, while *Geum urbanum* has lyrate pinnate leaves, a branched stem and simple flowers.

Belladonna root.—A sample sent to me for examination contained fifty per cent. of a malvaceous root, which I believe to be that of *Malva sylvestris;* the remainder consisted of small pieces of belladonna root. Externally, the two are very much alike, especially when the belladonna is in small pieces; but internally the appearance and structure will be seen to be very different, belladonna having a very large meditullium and a small cortical portion, while in the mallow the two are nearly equal. The fracture of belladonna also is short, while in the mallow it is distinctly fibrous.

This adulteration, although easily detected, is of considerable importance, seeing that it would in this proportion reduce the strength of the preparations of belladonna by one-half. Both the arnica and belladonna were imported from Germany.

Whether these adulterations are to be taken as an indication that arnica and belladonna are becoming scarce in Germany, or whether they are the result of a demand for cheap drugs, is not very evident, but their occurrence does point to the necessity for a very careful examination by the pharmacist of all crude drugs which enter into stock, and to the importance attaching to a thorough acquaintance with the appearance and structure of all articles of materia medica. They show also that adulterations may occasionally occur where they would be least suspected.—*Phar. Jour. and Trans., April* 11, 1871.

ANALYSIS OF IODINE.

By Gaston Tissandier.

Translated from the Moniteur des Produites Chimiques, by S. A. Goldschmidt, E. M.

The method of analysis producing the best results is to dissolve the iodine in sulphurous acid, and precipitate it as iodide of silver in the presence of an excess of ammonia to dissolve any chloride which may be present. The principle of the process is simple, yet certain precautions are necessary in order to insure the success of the analysis.

1. *Weighing the Iodine.*—As iodine volatilizes with great readiness,

it is impossible to weigh it upon an open watch-glass as in ordinary analyses. Place a few grammes of iodine in a well-corked specimen tube, and weigh. Throw a few decigrammes into the sulphurous acid solution and rapidly close the tube. The difference in the weight of the tube gives the amount of iodine taken for analysis.

2. *Determination of the Iodine.*—Place in a beaker or flask of about one litre capacity 40 c. c. of concentrated and freshly prepared solution of sulphurous acid. In this the iodine is dissolved by stirring. If an appreciable residue remains, this is filtered off and weighed, care being taken to keep the funnel covered during the operation. This. however, is seldom necessary, commercial iodine containing generally but small traces of insoluble substances.

Pour now into the beaker at least half a litre of boiling water, and an excess of ammonia; and then add nitrate of silver, cover the beaker, and allow the precipitate to stand about half an hour in a warm place. At the end of that time filter through Swedish paper without folds, wash by decantation with boiling water, taking care to gather the precipitate at the apex of the funnel. When thoroughly washed, giving no turbidity with hydrochloric acid, the precipitate is dried in an air bath at 110° C.

Care must be taken prior to igniting the argentic iodide to remove all trace of carbon, lest the precipitate should be reduced to metallic silver. Remove the iodide from the filter by means of a platinum spatula, to a piece of glazed paper, scraping the paper to remove the smallest fragments; in spite of these precautions a little will adhere to the apex of the filter; cut this off and calcine it in a weighed porcelain capsule of about 12 mm. diameter. When the ash is perfectly white, add the iodide, and heat till it begins to fuse; cool and weigh. The equivalent of iodide of silver is 235, and of silver 108, so that the precipitate contains 54 per cent. of iodine.

3. *Determination of the Chlorine.*—To the filtrate from the last determination add an excess of nitric acid, filter and weigh the resulting chloride with the usual precautions.

4. *Determination of the Ash.*—Weigh five grammes in the method already described, and ignite gently in a porcelain capsule till all the iodine has volatilized; the residue should be very slight, and consists chiefly of silica and alumina, with trace of alkaline chlorides.

5. *Determination of the Moisture.*—The quantity of moisture in

commercial iodine is often considerable, frequently as much as 20 per cent. This must be determined by difference, as all direct determinations being attended by heat would cause large quantities of iodine to volatilize.

We have, however, in cases where the sample is very moist, employed the following method: Place a gramme of iodine in a narrow tube graduated into tenths of centimetres, add 20 c. c. of bisulphide of carbon, and shake the tube. Closing the orifice with the finger, till the iodine is entirely dissolved, cork the tube, and allow it to stand in a warm place for three hours: at the end of the time the water in the iodine will have separated from the solution, and the number of centimetres occupied by the water will give the percentage contained in the iodine. This method is not exact, but will act as a check upon the remainder of the analysis.

Below are a number of analyses of commercial iodine, Nos. 3, 4, and 5 being good samples; Nos. 1 and 2 containing more water than is usually found.

	1	2	3	4	5
Iodine, ...	76·21	79·50	84·25	88·61	94·12
Chlorine, . .	0·88	0·71	0·92	0·52	0·30
Ash, ...	1·11	1·02	0·80	0·72	0.40
Moisture, . .	21·80	18·77	14·03	10·15	5·18
	100·00	100·00	100·00	100·00	100·00

—*Amer. Chemist, May*, 1874.

Varieties.

The Production of Vanilla.—In the island of Reunion (or Bourbon) there were in 1870 nearly 700 acres under culture with vanilla, which produced 37,024 lbs. The French Colonial Commission has been seeking to extend the culture of this valuable orchid. It appears that the large sales of vanilla which were made in the French Colonial Section of the Paris Exhibition, in 1867, have extended the taste for this aromatic flavoring, and caused the price of the finest qualities of Reunion Vanilla to advance from 16 francs to 100 francs per lb. In view of the insufficiency of the production to meet the increased demand, instructions have been sent out to these colonies as to the processes of artificially fecundating and preparing the pods, and it is expected that the culture will be largely extended. It was from Reunion that this orchidaceous plant was transported to Mauritius, by M. Richard, of the Botanic Garden of Reunion.

The plantations for vanilla are extending in Mauritius, and occupy the attention of many small proprietors. This product bids fair to extend considerably,

in view of the high prices obtained for it in the markets of Europe. The value of the shipments in the last few years has been as follows: 1867, £1488; 1868, £965; 1869, £2004; 1870, £2860; 1871, 4920 pounds, valued at £3345 in the colony.—*Journ. of Applied Science (Lond.), May* 1, 1874.

History of the Paris School of Pharmacy.—A short time since the fact was mentioned that a discussion had taken place in the French legislature respecting the dilapidated and unsafe state of the Paris School of Pharmacy. As it appears probable that, after being used for about three hundred years for purposes more or less connected with instruction in the art of preparing medicines, this building will be shortly abandoned by the School in favor of a more commodious one, the opportunity has been taken to publish a short sketch of its history, past and present, in the pages of "L'Union Pharmaceutique," from which the following is taken:

The origin of this establishment is very ancient. Upon the site occupied by it at the present day there formerly stood an hospital, probably founded in the thirteenth century by Marguerite de Provence, widow of Louis IX, which, in the following century, belonged to Guillaume de Chanac, bishop of Paris and patriarch of Alexandria. In 1559 the building was in the occupation of a Pierre Galand, when by a parliamentary decree it was allotted to the lodging and treatment of paupers suffering from venereal maladies. So reconstituted, the establishment took the name of the Hôpital de Lourcine.

Afterwards, Nicolas Houel, a grocer, born in Paris in 1520, conceived the idea of establishing a charitable institution where orphans might be instructed in the apothecaries' art, whose mission it should be to administer medicines to the respectable poor. An edict of Henry III, dated 9th October, 1576, approved of this foundation, and of the formation of a garden of simples. Nicolas Houel applied for a portion of the building called the Hôtel de Tournelles, then abandoned, in order to put his project into execution. A commission appointed to consider his application accorded to him the Maison des Enfants-Rouges, in the Marais, and the new institution was installed and remained there until 1578. In that year, in consequence of difficulties met with by the founder, he asked to be allowed to transfer his establishment to the house in the rue de Lourcine, the buildings of which were in a very bad state. A decree of the parliament, dated 2d of January, 1579, authorized the transfer, which was carried out in the following April. The establishment bore the name of "Maison de la Charité Chrétienne."

Some waste ground belonging to the house, the greater part of which belongs to the School of Pharmacy at the present day, was planted with trees, and on another portion of it Nicolas Houel raised a house at his own expense, which was on one occasion ruined by an inundation of the Bièvre. The inclosure was continued to the rue de l'Arbalète, and eventually Houel formed there, on the model of the garden at Padua, a botanic garden which was the first that had existed in France. Nicolas Houel died in 1587. Nine years afterwards Henry IV changed the destination of the establishment, which he appropriated to soldiers of all grades wounded in his service, and it thus became the first germ of the Hôtel des Invalides.

These invalids were in turn transferred by an order of Louis XIII to the Bicêtre, and the house of Christian charity thus vacated was occupied by various communities of women, the property being handed over to the Order of Saint Lazarus. From them it soon passed into the hands of the Bishop of Paris, who granted it to the Hôtel Dieu. Finally, by two decrees of parliament, issued in 1624 and 1625, the lands were granted to the Corporation of Apothecaries, who were charged to carry out the foundation of Nicolas Houel. Shortly afterwards this corporation augmented the original land by the purchase

of two large gardens in the rue de l'Arbalète. In 1629 it also built there a large house, which now forms the principal portion of the building of the School of Pharmacy.

This establishment at first went by the name of the "Jardin des Apothicaires." This, by order of the King in 1777, was changed to "Collége de Pharmacie," and to "École Gratuité de Pharmacie," by a decree of the Executive Directory, dated 3 floréal an iv (22d April, 1797). Finally the law of the 21 germinal an xi (10th April, 1804), having established in France three schools, that of Paris, which was only a continuation of the previous school, entered into possession of the ground and buildings situated in the rue de l'Arbalète. This possession was confirmed by a decree of the Government a few months later.

At that time the School of Pharmacy managed its own affairs, under the authority of the Minister of the Interior. This arrangement was continued until September, 1841, when, by a royal ordonnance, the schools of pharmacy were placed under the same *régime* as the universities. In its earlier days the real estate of the school remained the same as when it was received from the apothecaries. It received its first augmentation in 1821 by the acquisition, for the sum of 9000 francs, of an enclosed garden. In 1844, a neighboring house, of which, however, possession was not obtained until 1853, was purchased for 20,000 francs. In 1857, part of the original land, abutting upon the rue de Lourcine, was exchanged for some land situated in the rue de l'Arbalète more convenient to the school. Such are some of the principal events in the history of the École Supérieure de Pharmacie, from its foundation in 1578 until the present time.

The buildings of the School of Pharmacy are now unfortunately falling into ruins, and it has become necessary to shore them up on all sides. They have, moreover, become insufficient, and it is under consideration to transfer the school to new premises, which might be built upon ground situated between the Observatory and the Luxembourg. An iron gate, opening upon the rue de l'Arbalète, gives access to a rather small court-yard, where may be seen, on each side of the steps facing the entry, the statues in bronze of Vauquelin and Parmentier. The school contains two amphitheatres, of which the larger would not seat more than 280. But there are 500 students. The same insufficiency occurs in the laboratories, which are six in number. Of these, one will accommodate 50 students; the other five, more recently constructed, would not accommodate more than 20 each. So that only 150 students can be employed at the same time in manipulation, and this occasions a great loss of time.

The "salle des actes," where the examinations are passed, is well arranged and contains a collection of portraits of all the professors who have successively taught in the school. Some of these portraits are remarkable works of art.

The chemical, physical, zoological, and natural history collections, as well as the library, are complete in relation to the teaching imparted in the school. Beyond this, they contain nothing particularly remarkable. They are open every day from 11 A.M. until 4 P.M.

The botanic garden also requires some augmentation. It is intended shortly to establish, upon government land close by, two temporary laboratories, built of wood, of which one is to be devoted specially to botany.

There are nine "chairs" connected with the school: (1) botany, (2) organic chemistry, (3) inorganic chemistry, (4) materia medica, (5) pharmaceutica

chemistry, (6) Galenic pharmacy, (7) physics, (8) zoology, and (9) natural history of medicaments.

The staff consists of nine professors, eight assistant professors, a responsible secretary, a superintendent of practical chemistry and pharmacy, four lecture demonstrators, three demonstrators of the practical course, a librarian and other officials, numbering in all thirty-five persons. The functions of director of the school are exercised by one of the professors.

During the four "trimestres" of the scholastic year 1872–73, there were 1382 entries. During the same time the number of examinations were 1664. The cost of the terms and examinations for the diploma of pharmacien of the first class is 1390 francs; that for the terms and examinations for the diploma of pharmacien of the second class, 660 francs.

In 1872 the receipts of the École Supérieure de Pharmacie of Paris amounted to 238,790 francs. The expenditure during the same time, including the cost of the staff, was only 174,875 francs 76 centimes, leaving a balance of 63,914 francs 24 centimes.

Amongst the remarkable persons who have passed through this school may be mentioned Parmentier, Vauquelin, Robiquet, Pelouze, Pelletier, and Caventou, the latter two of whom first prepared the sulphate of quinia. At the present day the staff of the school is constituted as follows:

Director.—M. Chatin.

Honorary Director.—M. Bussy.

Administrators.—MM. Chatin, Berthelot, and Planchon.

Honorary Professor.—M. Caventou.

Professors.—Botany, M. Chatin; Organic Chemistry, M. Berthelot; Zoology, M. Milne-Edwards; Physics, M. Buignet; Galenic Pharmacy, M. Chevallier; Natural History of Medicaments, M. Planchon; Toxicology, M. Bouis; Pharmaceutical Chemistry, M. Baudrimont. The chair of Inorganic Chemistry is at present vacant.

Delegates from the Faculty of Medicine.—MM. Bouchardat and Gavarret.

Assistant Professors.—MM. Soubeiran, Riche, Bourgoin, Jungfleisch, Le Ronx, Marchand, Gustave Bouchardat, and Joannès Chatin.

Secretary.—M. Chapelle.

—*Pharm. Journ.* (*Lond.*), *May* 2, 1874.

Eupatorium in Tapeworm.—Dr. H. S. Wilkins, in Med. and Surg. Reporter for April 4th, reports a case in which a tapeworm was partially expelled from a woman after she had used an infusion of boneset for two weeks. Pumpkin seed, afterwards administered, had no effect; the boneset infusion was renewed and in a few days she voided over sixteen feet of the tænia.

Mutual Behavior of Oxygen and Water.—Em. Schœne.—The author concludes, from a series of carefully conducted experiments, that—(1) Ozone is partially destroyed by passing through water. If dry, ozonized oxygen is simply collected over water, the ozone present is diminished by about one-fourth.

If passed through water for a longer time, the loss of ozone is greater. The loss of ozone is the more considerable the longer the gas is in contact with the water, and the greater the surface exposed. (2) Ozone is absorbed by water in a considerable degree, even at the ordinary temperature of the atmosphere. (3) On passing dry ozonized oxygen through water much more ozone disappears than is absorbed by the water. The decrease of the proportion of ozone is, therefore, only very slightly determined by absorption, but must be considered as a consequence of the destructive action of water. (4) Ozone does not convert water into peroxide of hydrogen. As regards the loss of ozone in ozonized oxygen gas, on standing for a longer or shorter time in contact with water, the author concludes—(1) if oxonized oxygen is left in contact with water, the ozone is gradually converted into ordinary oxygen. In three days the original proportion of ozone is reduced to one-half and in fifteen days mere traces of ozone remain. (2) The transformation of ozone into oxygen, in contact with water and at common temperatures, is attended with an increase of bulk.—*Chem. News*, from *Ann. d. Chem. u. Pharm.*, 1874, *Jan.*

Formation of Gum in Fruit-Bearing Trees.—E. Prillieux.—In the wood of a tree diseased with gum, a great number of vessels are always seen more or less completely filled with gum; sometimes they are entirely filled to a certain length, and sometimes the gum only forms a coating either upon all the periphery or only on one side. The gum first shows itself in very small drops, which gradually increase in size and touch each other, forming small irregular masses. Recent German observers have stated that the formation of the gum is due to the disorganization and transformation of the internal part of the wall of the vessel, but the author has come to an opposite conclusion. In examining the wood of an apricot tree from which large masses of gum were extracted, it was found that the vessels were marked with areolated punctures, and with a spiral line due to a thickening of the membrane; also that the surfaces of the masses of gum were marked with deep furrows corresponding with the spiral lines of the vessel-wall, and even with small projections according with the punctures. It is thus certain, in the author's opinion, that the gum has poured into the interior of the vessel, and that the marks upon it are imprinted from the vessel wall.

In the production of gum in the cellules by the transformation of starch, it has been observed that, on the first appearance of gum in the cellule, the unchanged starch gathers into small masses, around which forms a thin coating of gum. Gradually the starch diminishes, while the coating of gum increases, until at last the starch disappears altogether, leaving generally a vacant space in the centre of the mass of gum.

Often the gum produced in such considerable quantity is formed neither in the vessels nor in the cellules, but in the spaces between the young tissues, generally between the wood and the bark, yet often also at different depths in the wood. These gum-spaces grow at the expense of the neighboring tissues, which suffer important modifications: the cambium, instead of producing woody fibre, forms cellules in which abundance of starch are deposited, which starch subsequently becomes converted into gum.—*Jour. Chem. Soc.* (*Lond.*), *April*, 1874, from *Compt. Rend.*, lxxviii, 135.

Anæsthetic Properties of Saponin.—From the researches of Dr. Kohler, quoted in the London "Medical Record," saponin is possessed of marked powers as a local anæsthetic, so that it is possible that it may be yet of service in surgical operations. A solution of saponin, applied externally, produces partial paralysis of the motor and sensory nerve filaments; administered hypodermically, these effects are realized to a greater extent. Saponin exists in many plants, as in the Sileneæ—*Saponaria officinalis;* Polygalaceæ—*Polygala senega;* and Sapotaceæ—Cortex monesiæ, a product of the *Chrysophyllum glycyphlœum.*—*Canadian Pharm. Journ., May* 1874.

Crystallized Glycerin.—In a paper read at a recent meeting of the Liverpool Chemists' Association, Mr. A. H. Mason described the properties and characteristics of crystallized glycerin, as exhibited by a specimen obtained from the patentee. The glycerin was first shown at the Vienna Exhibition, and it was then understood that this crystalline condition could only be insured by absolute chemical purity. From actual examination of a specimen, Mr. Mason thinks that this condition is not necessary to bring the specimen to the crystalline form in which it exists. Being very hygroscopic, atmospheric influence of mean temperature is quite sufficient to liquefy it, and, once liquid, exposure to intense cold will not cause it to congeal. The peculiar mousey odor is present. Contact with calcic oxalate produces slight turbidity, and heated with sulphuric acid and absolute alcohol there is discoloration. The method of production, being patented, is a secret; it commands a fancy price. Its usefulness is questionable; as a chemical curiosity it is interesting.—*Ibid.*

Chloral and its Combination with Albuminoïd Matters.—J. Personne—Although albumin combines with chloral, the author has not been able to determine the conditions necessary to obtain a definite compound; yet he says that such a compound is soluble in excess either of albumin or of chloral. On one occasion a compound was obtained, which, when dried for eight hours, at 40—45°, then pulverized and dried at 100°, gave on analysis, 12·56 per cent. of chlorine, equivalent to 17·23 per cent. of chloral.

If the action of chloral be due to the chloroform which it produces in the human system, then the greater duration of the effects of chloral over those of chloroform may be thus explained. The first action of chloral hydrate upon the albuminoïd matters which it meets with in the human system, produces chloroform by means of the alkali of these albuminoïd matters. At the same time these matters, deprived of alkali, form a combination with the undestroyed chloral, and this combination forms a kind of reservoir of chloroform, which only cedes it gradually in proportion as the circulation destroys the combination formed. This explains why only a very small quantity of chloroform is met with in the blood of animals submitted to the action of chloral. It also justifies the employment of chloral in the dressing of wounds as a powerful modifier of the tissues.

Chloral may be advantageously used for the preservation of the most readily

alterable mineral matters. An admixture of glycerin may be used where such matters are required to be preserved in a soft state.—*Jour. Chem. Soc.* (*Lond.*)· *April*, 1874, from *Compt. Rend.*, lxxviii, 129.

Santonic Acid.—H. Hvoslef.—Hvoslef prepared santonic acid by the same process as Cannizaro and Sestini (Jour. Ch. Soc. xi, 1229), as long ago as 1863. He gives the same formula and basicity for the acid, but states its melting point to be 171°.

The following measurements of the crystals were made by Waage:

$$\infty P : \infty P = 113° 18'$$
$$P\infty : P\infty = 130° 43'$$
$$P\infty : \infty P\infty = 140° 35'$$
$$\infty P : \infty P\infty = 123° 25'$$
$$a : b : c = 0{\cdot}4588 : 1 : 0{\cdot}6584$$

The santonates of heavy metals are for the most part soluble only in boiling alcohol, and the solutions yield, when cooled, gelatinous masses which gradually crystallize.

The further action of baryta on the solution from which the santonic acid has been precipitated by hydrochloric acid, yields two bodies, one of which is apparently a sugar. Santonic acid would therefore seem to be a glucoside.—*Ibid*, from *Deut. Chem. Ges. Ber.*, vi, 1471.

Helenin and Inula-Camphor.—J. Kallen.—Gerhardt found in the root of *Inula Helenium* a crystalline body, which he called helenin. This substance, although having a uniform appearance, and melting constantly at 72°, is a mixture of at least two compounds, which have the same crystalline form, and cannot therefore be easily separated. One of them, for which the name *helenin* is retained, may be obtained pure by repeated recrystallization from absolute alcohol. It forms long needles melting at 109°—110°, and having the empirical formula C_6H_8O. It has an insipid taste, and is almost insoluble in water. Its rational formula could not be ascertained, as bromine converts it into a resin, and nitric acid converts it into oxalic acid and a resinous nitro-compound.

The second body, which is more soluble in alcohol, is *inula-camphor;* it cannot be completely freed from helenin by crystallization, while by distilling the root with water, the camphor is volatilized but only slowly. It forms small prismatic needles, having a hot aromatic taste and the odor of peppermint. It melts at 64°, and dissolves sparingly in water and freely in alcohol and ether. It appears to be an isomeride of common camphor: for on distilling it with phosphorus pentasulphide, a hydrocarbon is obtained having the composition of cymene, and not that of Gerhardt's helenene, $C_{15}H_{16}$.—*Ibid.*, from *ibid.*, vi, 1506—1509.

Minutes of the Pharmaceutical Meeting.

The last meeting of the season was held in the Hall of the College, May 9, 1874.

The meeting was called to order by A. P. Brown, who was appointed President *pro tem*.

Prof. Maisch presented a copy of the Proceedings of the American Academy of Arts and Sciences, which was received with thanks. Also a sample of insect powder *flowers*, Pyrethrum roseum, from Betanelly & Co. A discussion took place, during which it was stated that the powder made from the above flowers possessed a more decided and somewhat different odor from that generally seen in the market; and it was stated that, in powdering, large quantities of insect powder flowers were fraudulently mixed with old chamomile flowers. matricaria, etc.

Jos. P. Remington presented, on behalf of Mr. Blackman of Newport, R. I., through T. H. Hazard. a thirty grain suppository mould, constructed on the principle described in the minutes of last meeting, The thanks of the College were directed to be forwarded for the gift.

Prof. Maisch exhibited a sample of the leaves of Liatris odoratissima, which were obtained, through T. H. Hazard, from Florida. They are used for perfuming tobacco, preserving cloths, etc., and contain coumarin as per analysis of Prof. Procter.*

A. P. Brown called the attention of the meeting to the miserable quality of the oil of sandal wood as generally furnished by the wholesale druggists. He showed a specimen of pure oil which possessed the usual persistent odor, whilst the other was of a thicker consistence, weaker in odor and had the smell of oil of copaiba in addition.

A communication from Mr. Wilder was read by the registrar, as follows:

Cudbear *versus* Cochineal.

I have often wondered why cudbear (*Lecanora tartarea*) never has been proposed as a coloring agent for elixirs, etc., instead of *cochineal*. It has at least that one good property of not reacting with iron salts, whether proto or sesqui. Its only fault is that, when largely diluted with water, (the alcoholic solution) it acquires a bluish (violet) tinge, very perceptible by shaking. This can, however, be remedied by the cautious addition of a drop or two of any diluted acid. I say cautious because, with acids, its rich carmine color turns brick red (which color in itself is beautiful enough).

Thinking that the cudbear might react with some salts. so as to give a muddy or otherwise unsightly color, I examined its behaviour to the following tests:

Ammonia.—Violet shade (gives a splendid show-color.)

Acids.—Brick-red (according to proportion and strength; diluted acids act either as simple diluents or brighten the color.)

$\left.\begin{array}{l}\textit{Ammon. chlorid.}\\ \textit{Potass. nitr.}\\ \textit{Potass. bicarbon.}\\ \textit{Sodii bicarbon.}\\ \textit{Magnes. sulph.}\end{array}\right\}$ A bluish (violet) shade.

* See American Journal of Pharmacy. 1859. p. 556, and 1866, p. 143.

Alumen.—Brightensrather.
Tinct. ferri chlorid.—A coarse brick-red.
Ferri proto-sulph.—Nothing particular.
Zinci sulph.—Violet shade.
Potass. iodid.—Nothing particular.
Donovan's solution.—Brick-red.
Dilute tinct. iodine. } Brick red.
Bromine water. }
Plumb. acet.—Dirty violet.
Potass. bromid.—Nothing particular.
Water.—A violet shade.

To repeat, it ought to be preferred because of its cheapness, and because it does not react with iron salts.

After a discussion by the members, on the advantage of using yellow wax in ointments, the meeting adjourned.

Joseph P. Remington, *Registrar.*

Pharmaceutical Colleges and Associations.

The National College of Pharmacy, Washington, D. C., held its annual meeting April 6th. The President, W. S. Thompson, delivered an able address, after which the following officers were elected for the ensuing year: President. R. B. Ferguson; 1st Vice-Presidents, F. S. Gaither, Phar D., W. B. Entwistle; Treasurer, S. W. Cromwell; Corresponding Secretary, D. P. Hickling, Phar. D.; Recording Secretary, J. C. Fill; Librarian and Curator, George Wooldrige.

The honorary degree of Doctor in Pharmacy was conferred on Professors O. Oldberg and R. H. Stabler.

The class during the past winter numbered thirty, and the graduating class consisted of T. P. Cole, F. S. Gaither and C. L. R. Sayre.

The Mississippi State Pharmaceutical Association held its annual meeting in the city of Columbus, April 8th, President Hampden Osborne in the chair. In his annual address the President reviewed the progress of the Association, urged the necessity of systematic education, referred to the loose system of apprenticeship in the southern portion of our republic, expressed a hope in the final success of the bill for regulating the practice of pharmacy, and discussed various other subjects of interest.

The following officers were elected for the ensuing year: President, Jno. T. Buck, Jackson; Vice President, F. H. Duquercron, Starkville; Corresponding Secretary, Hampden Osborne, Columbus; Treasurer, M. F. Ash, Jackson; Recording Secretary, P. H. Keefe, Vicksburg; Committee on Pharmaceutical Legislation—M. F. Ash, Chairman, J. F. Butler, Jno. T. Buck.

The next meeting will be held in Meridian, on the second Wednesday of April, 1875.

Michigan Pharmaceutical Association.—Pursuant to a call of Saginaw Valley Pharmaceutical Association a convention of the druggists of Michigan was held at the Biddle House, Detroit, May 20. The call stated the object of the convention to be to form a State association, with the view, among other objects, of securing the enactment of laws regulating the drug business in the State. About fifty pharmacists and druggists from various parts of the State were present. The meeting was organized by calling Dr. S. S. Garrigues, of East Saginaw, to the chair; James Vernor, of Detroit, was chosen Secretary.

A Committee on Organization, consisting of John Harvey, Chas. C. Curtis and B. E. Sickler, reported in favor of adopting the Constitution of the Maine Pharmaceutical Association for temporary purposes, and that an organization should be effected under it. The report was adopted, and the Committee continued, with the addition of Prof. Douglas, to prepare a constitution and by-laws.

The pharmaceutical law before the Legislature of Michigan was discussed at some length, and the following committee appointed to prepare a perfected pharmacy bill: Dr. Garrigues, Jas. Vernor, Theo. Rounefeld, S. H. Wagner, O. Eberbach.

The following officers were elected: President, S. S. Garrigues, East Saginaw; Vice-President, S. M. Sackett, Monroe; Corresponding Secretary, S. H. Wagner, Muskegon; Recording Secretary, James Vernor, Detroit; Treasurer, J. C. Mueller, Detroit; Auditor, Ottmar Eberbach, Ann Arbor.

The following appointments were then made:

Delegates to the next meeting of the American Pharmaceutical Association—E. C. Saunders, of Detroit; A. B. Lyon, of Detroit: F. Van Walshausen, of Bay City; S. H. Wagner, of Muskegon; C. C. Curtis, of Hillsdale.

Committee to prepare a list of antidotes. to be printed on poison labels—Profs. Prescott and Douglass and Mr. Eberbach, of Ann Arbor.

Committee to prepare queries for discussion—O. Eberbach, P. Plessner and J. Vernor.

The next meeting will be held in Detroit on the third Wednesday of October next.

Pharmaceutical Society of Paris.—At the meeting held March 4th, a letter from M. Phallide, of Bucharest, was read, recommending the rapid preparation of oil emulsions by using definite proportions of gum and water. MM. Buignet and Bourgoin stated that similar results had been published by Overbeck in 1851.* The remainder of the session was occupied with discussions on the antiseptic properties of chloral, on the behaviour of phosphorus and of phosphates during putrefaction, and of the causes which give to the urine an alkaline reaction.

At the session held April 1st, M. Petit read a memoir on unfermentable substances and on diastase, which lead to some remarks on fermentation. Professor Planchon exhibited the root of *Rheum rhaponticum*, which had been cultivated in the garden of the Paris School of Pharmacie; he showed its simi-

* See American Journal of Pharmacy, 1851. p. 377; also 1868, p. 205.

larity to English and other European rhubarbs, and demonstrated its difference from *Rheum officinale.*

The Fourth International Pharmaceutical Congress will be held at St. Petersburg, Russia, from August 1st (13th) to 6th (18th). Arrangements have been made with the Hotel Demouth for a considerable reduction of the usual charges. The reception committee, wearing white rosettes, will meet the foreign delegates at the depots on July 31 (August 12). The following programme for this Congress has been published:

Thursday, August 1 (13), 10 A. M. First session: election of officers, appointment of committees; in the afternoon, committee meetings; in the evening, reunion.

Friday, August 2d (14), forenoon, scientific discussion; afternoon, excursion by steamer and visit to the botanical garden, etc.; evening, reunion.

Saturday, August 3d (15), 10 A. M., second session; 5 P. M., dinner.

Sunday, August 4 (16) forenoon, visit to Isaac church, hermitage, etc.; afternoon, excursion to Peterhoff.

Monday, August 5 (17), forenoon, scientific discussions and committee meetings; afternoon, excursion to Zarskoje-Sselo and Pawlowsk.

Tuesday, August 6 (18), third session and adjournment of the Congress.

The questions to be acted on at this Congress have been published on page 205 of the April number.

Editorial Department.

Pharmaceutical Legislation.—In reply to Mr. Fredigke's essay, published in our May number, we have received several communications approving of the laws regulating the practice of pharmacy as enacted in several States, and suggesting that they should be made more stringent, if found to be inoperative from any cause. The arguments given in Mr. Fredigke's paper, printed in this number, contain several nice points; we leave our readers to judge of their weight, while referring them to the editorial remarks on page 249 of our last number.

In relation to the questions which are being discussed in Continental Europe, we have received a paper from Dr. Fred. Hoffmann, which will appear in our next number; it gives a condensed account of this agitation, involving the future status of pharmacy in Germany and other European countries. The ultimate results of this movement cannot, of course, be told in advance, but the necessity exists everywhere of securing to the sick such remedies as may be needed, but of the quality of which they cannot be expected to judge, and to have these medicines prepared by competent persons. On the other hand, the restrictions upon trade are being more and more removed in all countries; and from these two factors, it seems to us, the ultimate results must be closely analogous, without regard to the premises upon which the movement was inaugurated in the different countries.

Sugar of Lead Sold for Sugar of Milk.—A correspondent writes that he received from a wholesale drug house, in this city, a package marked "sugar of milk," which, on examination, proved to be acetate of lead. In some places milk sugar is used as an addition to milk and other food for babies, and the result of such a mistake must necessarily be serious, unless discovered and rectified in due time. In the course of his remarks our correspondent writes:

"And now the moral. What does this occurrence teach? Not alone a want of proper care on the part of the assistant who made the blunder, but a lack of proper surveillance on the part of his employer and preceptor. I have been in both branches of the business, and in several firms, and I know that in the matter of care and supervision some of our wholesale dealers fall lamentably short of their duty."

To which we add that this case is another illustration of the necessity of examining every drug and preparation before it is dispensed, no matter how reliable the house from which it has been purchased. The pharmacist who neglects this duty is not excusable if injury is done. As human beings, we are liable to err; to reduce this possibility of making mistakes to an almost absolute impossibility, constant watchfulness is necessary not only in the wholesale drug store, but likewise in the dispensing store, from the time a drug is received until it leaves the establishment in some form or other. This is a solemn duty, which we are bound to perform; for when the remedial agent leaves the pharmaceutical establishment, it has reached the hands of those who are presumably ignorant of its physical and chemical qualities, and are therefore compelled to put their trust into the attainments of him, who by following the business of a druggist or apothecary, assumes its responsibilities, and holds out to the public the assertion of his competency.

We entirely approve of the suggestion of our correspondent, that antiquated terms like white vitriol, green vitriol, blue stone, etc., should be discarded; they are, we believe, very little used by druggists, except in their intercourse with the public.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Third Annual Report of the Alumni Association of the College of Pharmacy of the City of New York, 1874. 8vo., pp. 52.

This pamphlet contains the commencement exercises, noticed on page 247 of our last number, together with the addresses delivered on this occasion, the minutes of the annual meeting, of the executive board, and of the conversational meetings, papers read at the latter, the constitution and by-laws, roll of members, etc. In a paper by Geo. W. C. Phillips, entitled "Latent Pepsin," the author arrives at the conclusion that, while a carefully made wine of pepsin, not containing over ten per cent. of alcohol, may and does contain pepsin, it exists in a latent state, and that when diluted with the juices of the stomach, at the normal temperature of that organ, it regains its activity and will perform its digestive functions.

Mr. John Vanderbeugle, in a paper read at one of the meetings, directs attention to Fowler's solution containing an excess of carbonate of potassium, on account of which precipitates occur when it is mixed with solutions of salts of morphia and other alkaloids; the addition of a little acid is therefore necessary.

A few formulas which were in use about forty years ago, have been contributed by G. C. Close.

The officers of the Association for the present year are G. W. C. Phillips, *President;* B. F. McIntyre, Phil. A. White, Wm. Wright, Jr., *Vice-presidents;* Theob. Frohwein, *Treasurer;* and P. W. Bedford, *Secretary.* The following delegates to the American Pharmaceutical Association have been appointed: P. A. White, S. A. Ambler, J. L. A. Creuse, B. F. McIntyre, L. M. Royce.

Treatment of Nervous and Rheumatic Affections by Static Electricity. By Dr. A. Arthius. Translated from the French by J. M. Etheridge, M.D. Chicago: W. B. Keen, Cooke & Co., 1874. 12mo. pp. 144.

This little work has been written for the purpose of proving the medicinal effects of static electricity, and its superiority over dynamic electricity. The physician will find it to contain many valuable facts and suggestions in the application of a remedial agent, which the author believes to be destined to render most important service to the medical art.

On the Polarization of Zodiacal Light. By Arthur W. Wright. 8 pages.

A reprint from the May number of the American Journal of Science and Arts.

OBITUARY.

Charles Ellis died suddenly at his residence in this city, aged 74 years. The deceased was one of the original members of the Philadelphia College of Pharmacy, which institution he served in various capacities for a number of years as secretary and as president, which latter office he resigned in 1869. He had also presided for one year over the American Pharmaceutical Association.

During his long and useful life, and while actively engaged in business, Mr. Ellis contributed about fourteen papers and a number of translations to the earlier volumes of this Journal, mainly on pharmaceutical and chemical subjects; he had been a member of its Publishing Committee for 42 consecutive years until 1872, and had acted the greater part of this time as its treasurer.

For a full biographical sketch of the deceased we refer our readers to the report on deceased members of the Philadelphia College of Pharmacy, which will be published in a future number.

THE

AMERICAN JOURNAL OF PHARMACY.

JULY, 1874.

CHLORINATED ALKALIES AS A TEST FOR MORPHIA AND OTHER PROXIMATE PRINCIPLES.

By Henry S. Wellcome, G. P.

While making a series of experiments on the alkaloids, I found that chlorinated lime gave a red color with morphia, and at that time was not aware that the reaction had ever before come to notice, as none of our text-books in chemistry make any mention of it. I have since found a very brief note in *Gmelin's Chemistry*, Cav. edit., Vol. xvi, p. 425. "Aqueous chlorinated lime gives a dark orange color with morphia (Duflos). Chlorine gives a yellow color with morphia, and is changed to dark brown by ammonia (Braconnot)." By referring to the files of some of the pharmaceutical journals, I find that the reaction of chlorine and chlorinated lime has several times been announced as a new test,* but seems to have never been fully investigated. Having become interested in it, I have continued my investigations, and have become convinced that it deserves more attention than it has received.

It is extremely delicate and very characteristic. Solution of chlorinated soda and other alkaline solutions of chlorine give the same reaction. As a reagent, the following solution has been found very convenient; it is made by adding two ounces of fresh chlorinated lime to a pint of water, and, after standing a few hours, decanting the clear solution.

Morphia, in powder, gives a deep red color with a drop of this solution.

With a solution of one grain of morphia in one thousand grains of water, it gives a bright red color; and a drop of the mixture evapo-

* Compare American Journal of Pharmacy, vol. viii, p. 213; vol. x, p. 108; vol. xxviii, p. 9.

rated on a porcelain plate leaves a deep red ring. On the addition of ammonia, or any other strong alkali, the solution becomes dark-brown.

It gives a distinct orange color in solution of one grain of morphia in five thousand of water, and with care may be made to show plainly in solution of one grain in ten thousand. Excess of the chlorine decolorizes these solutions, and the orange color cannot be restored. Excess of an acid decolorizes them, but the color reappears on adding excess of an alkali. These reactions are the same in the presence of all other alkaloids with which I have experimented.

When a few drops of chlorine water are added to morphia in powder, and, after solution, a drop or two of ammonia, beautiful red star-like spangles will form. This test is best performed on a porcelain plate or crucible cover.

Alkaline solution of chlorine also gives a red color with phloridzin, either in powder or solution, and this is decolorized by excess and by acids, and restored the same as morphia, by excess of alkali; but as this is very rarely used in medicine, it seems to be of very little importance. In powder, it is colored brown-black by strong nitric acid, by which behavior it is readily distinguished from morphia.

Colchicia gives a yellow color with the chlorinated lime solution, but so slight that it is of little importance.

Aloin gives a dark-red color, part of which is due to the alkali; the color is only partially destroyed by excess of an acid.

The only other alkaloid which I have found that gives a similar reaction with chlorine is brucia.

Any solution of chlorine added to an acid solution of brucia gives a bright-red color. Alkaline solutions of chlorine do not react with the powder; but if a drop of an acid be first added, a deep red color is produced.

Excess of chlorine decolorizes both, and the color cannot be restored. Strong acids and alkalies cause no changes; thereby it is readily distinguished from morphia, and the reaction becomes a characteristic and delicate test for brucia.

While conducting these experiments, I have had access to Prof. Maisch's and other extensive collections of alkaloids and proximate principles, and have found all others, besides those enumerated above, to give a negative, or nearly so, reaction with the alkaline solution of chlorine.

In testing for morphia, the solution must be neutral or alkaline; excess of chlorine must be avoided, and no substance should be present which will give a red color with alkalies.

New York, June, 1874.

PHARMACEUTICAL NOTES.

By G. J. Luhn.

On pages 150 and 154 of the *American Journal of Pharmacy* there appear two errors, one in the formula given for syrup of croton chloral hydrate, and the other, in the formula for tincture of phosphorus, which it would be well to correct.

In order to give two grains of croton chloral hydrate in each fluidrachm, the formula published ought to read as follows:

Croton chloral hydrate,	96 grains (instead of 64 grs.).
Pure glycerin, . .	½ fluid ounce.
Hot distilled water, . .	1½ fluid ounce.
Simple syrup, . .	4 fluid ounces.

The formula, as it stands, with 64 grains of croton chloral hydrate to the six ounce mixture, would make each fluidrachm contain only one and a third grains. It seems strange that, in every republication of this article, and I have three now in my possession, this error should not have been noticed before.*

I find the following preparation, containing two grains of croton chloral hydrate to each fluidrachm, can be easily made in a very short time, and I think will keep well. It is so readily made, however, that there is no neccessity for keeping it on hand:

Croton chloral hydrate, . .	24 grains.
Tincture orange-peel, . . .	1 fluidrachm.
Glycerin, Water, } . . .	each, 2 fluidrachms.
Simple syrup, ...	7 "

* Both formulas referred to above give the quantities in the weight (not in *measure*) of the British Pharmacopœia; converted into the equivalent measure, the formula for syrup of croton chloral hydrate will be found to yield 4 fluid ounces, 7 fluidrachms, 10 minims; and the formula for tincture of phosphorus 18 fluidrachms, 42 minims, if evaporation is totally prevented.—Ed. Am. Journ. Pharm.

The ingredients ought to be added in the order in which they are written, and the result will be a clear brownish solution. You will note that the tincture of orange-peel and simple syrup are in the proportion of the formerly officinal syrup of orange-peel.

The error in the tincture of phosphorus is also in the quantity contained in each fluidrachm. The proportion of phosphorus, according to the formula given, is only one-twentieth of a grain to each fluidrachm and not one-twelfth of a grain as stated. There being twenty, or nearly twenty, drachms of fluid substance, used in the manipulation of one grain of phosphorus.

In connection with this subject I desire to offer a formula which I have used for some time, and which I have styled (under the present elixir epidemic) elixir of phosphorus. It has been satisfactorily prescribed by a number of physicians in this city:

℞	Phosphorus, ...	gr. i.
	Æther sulph. conc., ...	f℥iiss.
	Alcohol, ...	f℥i.
	Tr. menth. pip., ...	f℥ss.
	Bower's glycerin, . q. s. to make	f℥iii.

The phosphorus completely dissolves in the ether in about twenty-four hours, care being taken to introduce no water into the ether with the phosphorus. After the solution of the phosphorus is effected, the alcohol may be added, but the glycerin should be added in small portions, and the mixture shaken after each addition and allowed to stand until it becomes clear before another portion of the glycerin is introduced.

A great deal of care has to be exercised in the addition of the glycerin; if too much be added at a time it will disengage a quantity of phosphorus, which will fall to the bottom. The essence of peppermint may either be added with the alcohol, or as the last ingredient, the latter is preferable, especially if the preparation is not made with 95 per cent. alcohol. Some apothecaries, I believe, use 80 per cent. alcohol in making it.

This preparation contains one-twenty-fourth grain of phosphorus to each fluidrachm, or teaspoonful. It is quite burning to the taste, but can easily be administered in a little simple syrup, when it will not be at all unpleasant to take. It has quite a milky appearance when mixed with syrup, but I do not think the phosphorus is precipitated, at least not rapidly enough to prevent its being taken.

I have also often added fluid extract of nux vomica to this preparation in quantities of three drops to each fluidrachm, and in this form it has been styled compound elixir of phosphorus.

Charleston, S. C., June, 1874.

MISTURA ASSAFŒTIDÆ AND MISTURA AMMONIACI.

By J. W. Wood.

The preparation of these two mixtures in accordance with our Pharmacopœia is not calculated to inspire, in case of the former, the most agreeable impressions imaginable upon the olfactories of the pharmacist; nor in the latter, if an impatient customer is waiting for it.

From the instability of the aqueous mixtures of these gum resins, we are precluded the possibility of keeping them always ready for dispensing.

To overcome this disadvantage I have devised the following convenient, and, I presume, altogether unobjectionable, mode, which will at once commend itself at least to those whose remembrance of odorous mortar and wearied elbow does not contribute to the charms of their profession. The improvement consists in forming a solution, or at least suspending the gum resins in a certain proportion of pure glycerin, which mixtures are to be kept for adaptation to their purposes, as follows:

℞.—Assafœtidæ electæ, ...	℥ii.
Glycerinæ puræ, ...	℥vi.

Cut the assafœtida into small pieces, and, together with the glycerin, introduce into a capsule, and subject to a moderate heat, constantly stirring and triturating with a pestle. In a short time the solution will be effected, and the result will be a liquid, not too thick for easy manipulation, each troy drachm of which will represent fifteen grains of the gum resin. Transfer to a wide mouth bottle, and label according to contents.

Now, if we receive a demand for, say four ounces of mistura assafœtidæ, we need simply ascertain the weight of the bottle, and add therein exactly four drachms (troy) of the above glycerole of assafœtida, and afterwards water sufficient to make the measure, and, with a shake or two, the thing is done, the result being a handsome

preparation, much less susceptible of change than the officinal mistura, by the presence of the glycerin, which is certainly unobjectionable, and may possibly be advantageous therapeutically.

The only extra precaution necessary in preparing the glycerole is to guard against employing too great a degree of heat, so that the volatile oil may not be dissipated.

Mistura ammoniaci is prepared in precisely a similar manner as the foregoing, the proportions being the same, and the result being equal, if not superior, to that made by the officinal formula. It certainly, in point of convenience and facility, possesses a decided advantage.

Wilmington, Del., June, 1874.

ANALYSIS OF THE BARK OF *CEPHALANTHUS OCCIDENTALIS* LIN.

By Edgar M. Hattan, G. P.

From an Inaugural Essay.

The bark of the buttonbush or pond dogwood was brought to my notice by an article in the *American Journal of Pharmacy*, 1872, p. 195, where it is stated that the bark has been repeatedly recommended as an expectorant useful in consumption. In the U. S. Dispensatory, it is said to be laxative as well as tonic, and to have been given in periodical fevers.

The following experiments were made with the bark, which was collected by myself, in the month of September, in New Jersey. It consists of a comparatively thick corky layer, externally of a dark-gray color, with patches of green, exceedingly rough, with longitudinal furrows; the thin liber portion is smooth, and when first removed was white, but soon changed to a reddish-brown color.

An infusion of the drug when heated does not coagulate nor become turbid, showing absence of albumen. Tannin was found present, the variety precipitated green with salts of iron. Trommer's test gave evidence of sugar. Starch was found in a decoction by the addition of iodine. Potassium iodohydrargyrate gave no precipitate in an acidulated infusion, showing absence of alkaloids. A distillate was perfectly clear, neutral to test paper and with a slight aromatic odor.

Eight troy ounces of the drug were then decocted, the decoction being of a dark color, with a bitter and astringent taste, was treated

with neutral acetate of lead and filtered. The filtrate yielded, with basic acetate of lead, a precipitate as the first. After washing both lead precipitates with water, they were treated separately with alcohol (sp. gr. 835, the strength used throughout the experiments.) AmHS showed absence of lead in the alcoholic solution from neutral acetate of lead precipitate (No. 1), but that from the basic acetate of lead precipitate (No. 2) having lead present, it was removed by H_2S. Both solutions were remarkably fluorescent. They were concentrated, filtered and set aside to crystallize. No. 1 deposited at first a yellow resinous matter, and after standing longer, needle-shaped crystals formed; when ignited on platinum foil, a residue was left, consisting of calcium and potassium. No. 2 at first deposited white opaque feathery and spherical crystals, afterward beautiful needle-shaped crystals on the bottom and sides of the vessel.

Both sets of crystals were slightly soluble in water, soluble in ether. A small portion of opaque crystals were re-crystallized in a test tube and gave crystals corresponding to the others; hence they are apparently identical. These crystals give a slight acid reaction and had a leathery taste. On igniting part of second product on platinum foil, a residue was left, which proved to be potassium.

Crystals of No. 1 were dissolved in hot water slightly acidulated with HCl, and on cooling was agitated with ether. The ethereal solution on separating was decanted and set aside, leaving on evaporating, needles, which burned without residue.

With the crystals of No. 2 the same result was effected. From the appearance of these two sets of crystals and the decided fluorescence produced by them when in solution, and especially on the addition of alkalies, they were considered identical and the fluorescent principle of the drug. The effects of this principle were noticed to some extent in most every solution throughout these experiments.

The following results were obtained with the crystalline body:

In an aqueous solution, alkalies intensify the fluorescence: acids destroy the fluorescence, but it is restored on the addition of an alkali.

It dissolves more readily in dilute acids and alkaline solutions than in water alone.

An alkaline solution is not completely decolorized by acids.

Alkaline solutions are blue by reflected and yellow by transmitted light.

On addition of metallic salts to an aqueous solution, no precipitate is formed, except with basic acetate of lead, which is yellow.

The crystals when dissolved in dilute HNO_3 gave a solution of yellow color, and when supersaturated with hydrate of potassium it became light red.

These reactions and the solubility as noticed, are the same as those of æsculin. Although agreeing in so many respects with æsculin, it was found not to be a glucoside.

The resinous deposit from No. 1 was next examined. It was soluble in alcohol, but insoluble in ether, and was split into glucose and another principle similar in appearance to the resin, but of lighter color, by boiling with dilute H_2SO_4.

The filtrate from the decoction, after being treated with the lead salts, was acted upon by H_2S, heated, filtered and concentrated; it was very bitter. This solution was digested with charcoal, and, after being washed with water and dried, it was boiled in alcohol until nothing more was taken up by that menstruum.

The alcoholic solution was concentrated and set aside; no crystals but an extremely bitter extract was obtained, which was translucent; freely soluble in water and alcohol, very sparingly soluble in chloroform and ether, and completely insoluble in benzin. It gave an acid reaction to test paper, which may perhaps be due to the fluorescent principle with which it was found to be contaminated, and which was not completely removed by ether. Several ways were tried for crystallizing this substance, but without succes.

The above filtrate from the charcoal was evaporated to a syrupy consistency and tested for sugar. Trommer's test showed its presence in cuprous oxide being formed gradually at the ordinary temperature; the syrup was uncrystallizable.

Twenty-four troy ounces of the drug were next exhausted with alcohol and gave a light-colored tincture, which was fluorescent. It was evaporated to an extract of an astringent bitter taste. Water was added to the dregs after exhaustion with alcohol, until it passed through the percolator almost colorless; it gave a solution considerably darker in color than the tincture, with fluorescence and astringent and bitter taste. This was also evaporated to an extract, in which the bitterness was not near so predominant as in the alcoholic extract, and was deprived of it on being treated with alcohol.

The *alcoholic extract* was exhausted with a limited quantity of water and filtered. The filtrate was perfectly clear, but on addition of more water, a cloudiness was produced, and on standing, a portion

of resin was deposited and then the solution became clear again, but on addition of more water, the same result was obtained, until quite a quantity of water had been added.

The resinous residue was of a light-brown color, and on being treated with ether, about one-third was taken up and gave a soft residue of yellow color.

The alcoholic resin on the removal of this lighter-colored resin became dark-brown, granular, and left a lasting bitterness in the fauces. It was insoluble in chloroform and benzin, soluble in alkaline solutions. A portion dissolved in solution of potassa was precipitated by HCl; also by solution of cupric sulphate, insoluble in excess of potassa. On boiling another portion with dilute H_2SO_4, it was proven to be a glucoside, giving glucose and a light-brown powder as the other product. This resin was considered identical with the glucoside obtained from the neutral acetate of lead precipitate. The drug being laxative with presence of the tannin, it was supposed this resin might possess purgative properties. Five grains were taken, but no result realized.

The ethereal resin on being treated with benzin, was deprived of a fatty substance, leaving a granular residue with bitter taste, an acid reaction, and perfectly soluble in chloroform.

The aqueous solution from the alcoholic extract on being agitated, considerable froth was formed, which remained permanent, in this respect corresponding with saponin, but solution of baryta produced no precipitate. The solution was concentrated, boiled with oxide of lead, filtered and the excess of lead removed by H_2S. It was then heated, filtered and evaporated to a very concentrated state. In this the frothing principle was still retained; alcohol added to this to preserve the solution, caused a copious light-colored deposit. The precipitate was collected, and on drying, became almost black; it had a slight bitter taste at first, but it was not lasting; was neutral to test paper, and on agitation with water was partially dissolved, causing quite a foam. On evaporating the filtrate, from which this principle was obtained, it was found to contain glucose and an intensely bitter principle, as did the filtrate from the decoction treated with lead before digesting with charcoal. This, on agitation with water, still frothed, but not to the extent of the precipitate.

A concentrated solution of aqueous extract obtained, as before stated, from the dregs after exhausting the drug with alcohol, was treated

with alcohol to precipitate the gum. The precipitate dissolved in water was treated with neutral acetate of lead, which removed coloring matter; and in the filtrate, after the removal of the lead and concentration, a white precipitate, answering to tests for gum, was obtained by alcohol.

The filtrate from which the impure gum was removed, was concentrated, agitated with ether, and from the decanted ether, on spontaneous evaporation, needles were deposited on the sides of the capsule, which left a residue on ignition, consisting of calcium and potassium. The acidulous radical corresponding in behavior with the fluorescent principle contained from the salt, which was obtained from the neutral acetate of lead precipitate.

The proximate constituents of the bark are a crystallizabe fluorescent acid, a bitter principle (uncrystallizable), a principle resembling saponin, tannin, two resins, fatty matter, gum, glucose and starch.

Two troy ounces of the bark were incinerated and yielded twenty-four grains, or two-and a-half per cent. of ashes, which contained carbonic, sulphuric, phosphoric and silicic acids; potassium, sodium, calcium, magnesium and iron bases.

The buttonbush or swamp dogwood belongs to the natural order of *Rubiaceæ*, is a shrub growing to the height of ten or fifteen feet and is found in Canada and the United States, growing in swamps and on the margin of ponds and brooks. The flowers are white and congregated in peduncled spherical heads, which give to the shrub quite a characteristic appearance.

ON THE OCCURENCE OF ARBUTIN IN ERICACEOUS PLANTS.

By John M. Maisch.

Arbutin was discovered, in 1851, in the leaves of Uva ursi by Kawalier,* and recognized as a glucoside, splitting into sugar and arctuvin. The latter body was further investigated by A. Strecker, and in 1858 announced to be identical with hydrokinone,† the nitro-compounds of which were more fully described by him in 1861.‡ In 1859, Uloth found in the dry distillate of the extract of several ericaceous plants (*Chimaphila umbellata*, *Calluna vulgaris*, *Ledum palustre* and *Vac-*

* See American Journal of Pharmacy, 1853, p. 68.

† Annal. d. Chem. und Pharm., cvii, 228.

‡ *Ibid.*, cxviii, p. 292.

cinium myrtillus)* besides pyrocatechin, a neutral crystallizable principle, which he named ericinon, and which Hesse† believed to be identical with hydrokinone. This identity was subsequently (1864) proven by Zwenger and Himmelmann,‡ who separated arbutin from the leaves of *Chimaphila umbellata*, and found that this principle yields, on dry distillation, hydrokinone, but no pyrocatechin, while among the products of the dry distillation of kinic acid they observed pyrocatechin, besides hydrokinone, as announced by Woehler in 1844.§ The hydrokinone which is found in the dry distillate of ericaceous leaves is therefore ascribed by them to the presence therein of arbutin, while in the leaves of *Vacciniew* it is due to kinic acid, the presence of which has been proven by Zwenger for the leaves of *Vaccinium myrtillus.*|| In 1870, E. Claassen¶ announced having obtained a crystalline principle from the leaves of *Vaccinium vitis idæa*, which I at one time** supposed to be probably identical with arbutin; however, on comparing his process with Zwenger's process for kinic acid, the two will be found identical, except that Claassen has omitted the final treatment with sulphuric acid, thus rendering it probable that his vacciniin is simply kinate of calcium. This supposition is confirmed by comparing the properties of this so-called vaciniin with those of kinate of calcium,†† the main difference will be found to be that the latter is stated to be *nearly* tasteless, while vaciniin is of a *somewhat* bitter taste (kinate of potassium is decidedly bitter); moreover, the absence of lime in vacciniin has not been proven by Claassen, for he merely says that his crystals are *reduced to coal by a stronger heat.*

This position appears to be further strengthened by the results of an analysis of the leaves of *Gaylussacia resinosa*, Torrey and Gray, (*s. Vaccinium resinosum*, Lin.) undertaken at my suggestion by Mr. Hugo Oppermann, and reported in his inaugural essay, recently presented to the Philadelphia College of Pharmacy. Arbutin could not be

* Annal. d. Chem. uud Pharm., cxi, p. 215–229.

† *Ibid.*, cxiv, p. 301.

‡ *Ibid.*, cxxix, p. 203–208.

§ *Ibid.*, li, p. 146.

|| American Journal of Pharmacy, 1861, p. 128.

¶ *Ibid.*, 1871, p. 297.

** *Ibid.*, 1871, p. 235.

†† See Gmelin's Chemistry, Cavendish Edit., xvi, p. 229.

obtained by any process, nor could its presence be detected by Jungmann's phospho-molybdic acid test; but the liquid from which coloring matter had been removed by acetate of lead and sulphuretted hydrogen, and which still contained calcium, had a bitter taste. The preparation of kinic acid was not attempted.* The leaves of our American *Vaccinieæ* deserve further investigation in the direction indicated above, since some at least yield hydrokinone on the dry distillation of their extract, as I have satisfied myself of the leaves of *Vacc. stamineum*, Lin.

While it seems probable, from the foregoing, that plants of the suborder *Vacciniea* contain kinic acid, instead of arbutin, the latter principle appears to be widely distributed among the plants belonging to the suborders *Ericineæ* and *Pyroleæ*. Besides those mentioned above, it has been obtained by Mr. Jefferson Oxley from *Epigæa repens*, Lin. and *Gaultheria procumbens*, Lin.,† and by Mr. J. H. Flint in *Arctostaphylos glauca*, Lindley. To these must now be added *Chimaphila maculata*, Pursh, from which Mr. Bartholomew Bantly‡ obtained it in handsome crystals.

Most of these plants have been employed in medicine in diseases of the urinary organs, diuretic properties being ascribed to them. Prof. C. D. Schroff§ observed no diuretic effects from half a gram of pure arbutin, while E. C. Hughes‖ found his ursin, which J. Jungmann¶ has since proven to be arbutin contaminated with gallic acid to possess diuretic properties. Is it not possible that tannin or gallic acid is necessary to induce the diuretic action of arbutin?

It is to be hoped that similar investigations will be performed with the leaves of other plants belonging to the natural order *Ericaceæ*.

* H. Oppermann found, in the leaves of *Gaylussacia resinosa*, a bitter principle (kinic acid?), resin, sugar, tannin, malic acid, chlorophyll, coloring matter, some fat and wax; and in the ashes potassium, sodium, calcium, magnesium, aluminium and iron.

† American Journal of Pharmacy, 1872, p. 250.

‡ Thesis presented to the Philadelphia College of Pharmacy, 1874. Mr. Bantly also found tannin, resin, glucose, gum, some starch and fat.

§ Pharmacologie, 1862, p. 142.

‖ American Journal of Pharmacy, xix, p. 89.

¶ *Ibid.*, 1871, p. 204.

A UNITED STATES AND BRITISH INTERNATIONAL PHARMACOPŒIA.

By Prof. Chas. Hermon Thomas, M. D.

There is something more than a sentimental relation suggested by the fact of our speaking the same tongue as the British nation. To the physician and pharmacist this is a matter of everyday recognition. The professional text-books and journals of both countries, devoted to medical science, are used in common in their colleges and public and private libraries, and in all departments but one—and that confessedly of prime practical importance—the terms used by authors convey a precise and identical meaning; while in that of materia medica, including pharmacy, the proper English and Latinized names employed are permitted to convey different meanings when used in the two countries, notwithstanding the liability to fatal mistakes added to the confusion thus engendered. If the same disparity of definitions of techicnal terms had existed in chemistry, anatomy, surgery, gynæcology, etc., that is found in materia medica, arising, as is does, out of the different proportions of constituent materials used in the medicinal preparations, common by name—but by name only—to both the United States and British Pharmacopœias, there never would have arisen that constant useful interchange of thought and experience which now exists; and if it were possible to introduce such a disparity in the ideas conveyed by like words into other departments of scientific literature as exists in this, it would undoubtedly prove a barrier to communication scarcely less formidable than a total difference in tongue or race.

The British and Foreign Medico Chirurgical Review for January, 1874, contains an article on the U. S. Pharmacopœia, which, while giving us credit for introducing certain improvements, such as the class of glycerites, closes with the following suggestive paragraph:

"There is almost a constant departure from the directions given in the British Pharmacopœia, in the matter of proportion of ingredients used; so that whilst many tinctures and infusions are considerably stronger than ours, there are many weaker. Thus, for example, the infusions of calumba, cascarilla and senna are made only of half strength, whilst those of digitalis and gentian are considerably stronger, the former being of double strength.

"Likewise in the matter of tinctures, we find the tinctures of aconite, belladonna, nux vomica and cantharides made double strength, while

those of cannabis, of hyoscyamus, of digitalis and of colchicum are one-fourth weaker. Lastly, tincture of opium and the camphorated tincture are made weaker than the British preparations.*

"It may be that the Americans are justified, at all events in some cases, in not following our authorities in this matter of strength of preparations; but at the same time it is a matter of regret that greater uniformity in this matter, between two nations speaking the same tongue and so intimately bound together by social and commercial ties, does not prevail.

"To British medical men cast abroad in America, and to American physicians landed in England, it must be vexatious, and at times a cause of injury to patients, to find that well-known formulæ, common

* The relation in the strength of these preparations is not correctly given by the *Brit. and For. Med. Chirurg. Review;* the difference in the officinal weights and measures have evidently not been taken into account. On close examination it will be found that the preparations of the two Pharmacopœias agree much better than the above quotation would lead us to believe, in fact, the majority, we believe, are *practically* identical in strength, like tincture of digitalis, hyoscyamus, etc.

It must be remembered that 30 fluid ounces of British Pharmacopœia are equal to 29 fluid ounces of U. S. Pharmacopœia, the difference being only about 1½ fluidrachms, and that the British ounce weighs 42·5 grains less than the U. S. troy ounce. One fluid ounce (imperial and U. S. measure) of the above mentioned preparations contains of the active drug the following number of troy grains:

	Brit. Pharm.	U. S. Pharm. In fld. oz. imp.	U. S. Pharm. In fld. oz. wine meas.
Infusum Calumbæ,	21·87	14·5	15
" Cascarillæ,	43·75	29	30
" Digitalis	3	7·25	7·5
" Sennæ,	43·75	29	30
Tinctura Aconiti rad.,	54 7	174	180
" Belladonnæ,	21·87	58	60
" Cannabis,	21·87	21·75	22·5
" Cantharidis,	5·47	14	15
" Colchici,	54·7	58	60
" Digitalis,	54·7	58	60
" Hyoscyami,	54·7	58	60
" Nucis vomicæ,	43·75	116	120
" Opii,	32·8	36·25	37·5
" Opii camphorata,	2	1·813	1.875

—Editor Am. Journ. Pharm.

by name to both, differ widely in their doses and activity on one and on the other side of the Atlantic.

"Speaking generally, these variations unhappily affect the more potent remedies rather than the others.

"The notion of an international pharmacopœia has been broached, and has many recommendations, although we apprehend the more or less divergent medical opinions afloat in different countries, and still more, circumstances dictated by peculiarities in modes of life, in climates and in floras, will lead each nation to claim more or fewer special drugs, and so destroy absolute uniformity.

"On the other hand, there would be a sufficient array of substances and formulæ admitting of so much concurrence as in some measure to attain the object desired. But, however this may be, there is good reason for bringing the British and United States Pharmacopœias more in accord, and so far making the first move towards an international codex, and we should be pleased to hear of communications being opened between the committee for the British and the convention for the United States' Pharmacopœia in anticipation of so desirable an object."

No teacher who has endeavored to instruct a class in medicine or pharmacy composed of students representing both nations will fail to realize the difficulty—not to say impossibility—attendant upon the labor of attempting to define and fix upon their minds the ever varying strength and dosage of such important officinals as the reviewer has here cited.

And no physician who has read the standard British authors on therapeutics, practice, diseases of women and children, and the like, with a view to making their precepts available in the treatment of disease, will dissent from the assertion that the value of such works is seriously impaired and sometimes entirely destroyed by the same fact.

The subject is one of far too great importance, and the defect too grave in its actual and possible consequences, to be allowed to remain longer unrecognized; and there can be no doubt that the suggestion at the close of the above quotation will find hearty approbation and coöperation wherever the question is presented.

Probably the chief obstacle to a universal pharmacopœia, for all civilized nations at least, will be found in the diverse systems of weights and measures employed in different countries; but there are

indications that the general interest in and acceptance of the new chemistry with the adherence of its writers to the metrical system will serve as an easy introduction for the essential, necessary for a satisfactory means of intercourse.

And problably, also, the use of the metrical system will have to become more familiar to scientific men at large than it is at present, before universal communication will be seriously attempted in this direction. But this question aside for the present, we are on a footing for establishing at once a unity of standard for the composition of the principal preparations of the Pharmacopœias of the English-speaking people, and this notwithstanding the radical differences between the systems of weights and measures in Great Britain and in this country respectively.

The expedient needed to be adopted being no other than for the United States and British pharmacopœial authorities to unite in putting into force the rule established by the Scandinavian nations at their international convention held in 1865, when the pharmacopœias of Norway, Sweden and Denmark were unified, and which rule is to express the relative quantities used in pharmacy in proportional parts by weight, as *e. g.*, two parts by any system of weight of the first ingredient, four of the second and one of the third, etc., thus securing like relative proportions in all standard compounds.

At the U. S. Pharmacopœial convention, which met at Washington in 1870, the following resolution of like import was ordered to be taken as a basis for the last decennial revision of our Pharmacopœia; but, for some reason never satisfactorily made known, the Committee on Revision appears to have disregarded its plain provisions:

"*Resolved*, That measures of capacity be abandoned in the Pharmacopœia and that quantities in all formulas be expressed both in *weights* and in *parts by weight*."

The consolidation already effected of the London, Dublin and Edinburgh in the British Pharmacopœia, the several Pharmacopœias of Central Europe constituting the German Empire and some others all tend to assure the practicability, as well as to suggest the advisability, of the step here proposed.

The advantages to be obtained by an internatinnal adjustment of at least the two Pharmacopœias in question, so that a given name shall indicate a preparation identical in composition and strength in

both countries, are obviously many and important. The objections to such a change few and insignificant.*

THE PROBLEMS AND FUTURE OF PHARMACY IN GERMANY.

By Fred. Hoffmann, Ph. D.

It appears to be of interest and utility to take notice of the problems which are now being discussed in Germany, where pharmacy has been, for over two centuries, the main cultivator of natural sciences, and as such, and as a branch of the healing art, has attained a position not reached in any other country, and where not only its sphere and import, but even its very existence seems to be at stake. Though the political, social and industrial conditions of Germany and the other European countries differ in many respects from those of North America, it will be found that the aims and interests of pharmacy, and its relations to other trades, are the same everywhere; and for this reason, the crisis into which pharmacy has entered in Germany, merits a wider attention. With the radical changes of popular views, in consequence of general intellectual advancement and the popularization of all branches of physical and sanitary sciences and of rational medicine, the former state and practice of medicine, and also of pharmacy, have undergone considerable changes in Germany and in Central Europe. Although difficult to comprehend outside of Germany, the most important necessary consequence has been the removal of all restrictions formerly placed, on the part of the State, upon the practice of medicine and hygiene, in Germany as well as in Switzerland. Medicine, in consequence of its extent and its unlimited sphere of application, has separated into several parts, which in study as well as in practice, have more or less become specialties, while some branches have become the common property of all well educated, and have occasionally been successfully practised also by others than physicians. Notwithstanding these innovations, modern medicine progresses; "with the higher aim that its object is not so much the cure, as rather the prevention of disease." (Virchow.) As another consequence of these tendencies the fact was lately stated, that "modern medicine has ceased to resort to and find its centre of gravity in the

* Dr. Thomas will be glad to collect suggestions from those interested, as to the best and most direct steps to be taken to secure the desired result. His address is 108 N. Twelfth St., Philadelphia, Pa.

pharmacies." (Pettenkofer.) How far these assertions represent the reality, may be judged not only from the pharmaceutical papers. but far better from the number and quality of popular science publications covering the field of hygiene and sanitary and medical sciences; the widely-known popular works which have passed through many editions and translations, of Professors Bock and Reclam, of Leipzig, may be mentioned as instances.

The medical schools have skeptically discarded a large portion of the old array of remedial agents, and retained comparatively few substances of certain chemical composition and hence proportionable with exactness; these are more and more administered by subcutaneous injection or in minute concentrated doses, and in forms which are more handsomely prepared by the confectioner than the apothecary, while the preparation of the chemicals has been transferred from the laboratory of the latter to that of the manufacturer,* so that the sphere of the apothecary has been materially narrowed and simplified, and a chemical knowledge, though always desirable, is not in the same degree requisite as heretofore.

When, therefore, we hear of a decline of pharmacy and of a decrease of its efficiency in Germany and other European countries, as yet not a degeneration of pharmaceutical education and proficiency, nor of the status of pharmacy, is intended; but principally the reaction of the conditions briefly sketched above upon pharmacy. An increase of medical skepticism and a lessening in the public mind of the value of remedies must certainly be followed by the lowering of the importance of pharmacy. Medicine cannot well be subject to such a retrogression, because its successful practice lies in an unalterable path, concerning the instability of human nature and life, and presupposes, besides actual knowledge, an individual fitness, technical skill, experience and judgment, with which the educated physician can always successfully encounter the ignorant or half educated competitor, while the competition amongst pharmacists scarcely exists upon the scientific, but almost exclusively upon the mercantile field.

The future status of pharmacy in Germany, as influenced by these factors, and in consequence of the rapid intercourse of nations and the generalization of ideas, their influence upon pharmacy in other

* See synopsis of lecture in *Druggists' Circular*, 1874, March, p. 57; and *Pharm. Jour. and Trans.*, March 28, 1874, p. 781; also Prof. Redwood's lecture on the "Past. Present and Future of Pharmacy." *Ibid.*, April 25, 1874, p. 863.

countries has been for some time the subject of deliberations in the pharmaceutical journals and in the meetings of pharmaceutical societies. To this must be added the pending abrogation of the protective grants, an institution antiquated in its origin and nature, but which has been one of the most important factors through which German pharmacy has reached its high status and its pregnant co-operation in the advancement of the physical sciences. The nature of these grants has been explained by me in a former paper, entitled "Pharmacy in Prussia and the German Empire."* Latterly, besides many reforms in relation to arts and industry, the grants and concessions have been abolished, and since the release of the practice of medicine, that of pharmacy appears to be merely a question of time and a financial problem, the solution of which is attended with so many difficulties, because upon these grants large amounts have been invested, which, with the legal abolition of the former, would be lost as far as they exceed the real value of the business. This question of national economy, which is now being discussed and is under consideration before the government and the legislature (Reichstag) in Germany, has been apparently satisfactorily solved in Sweden in this manner, that every newly established pharmacy has to contribute a certain sum, in accordance with fixed principles of valuation, towards the redemption of the capital invested in pharmacies, as far as its value is lessened in the same place. It is probable that a similar way will be chosen in Germany for the inevitable solution of this problem.

These are, in brief, the principal causes of impediment to the progress and prosperity of pharmacy in Germany, and which have tended to keep talent and capital from being invested in pharmaceutical pursuits, and to induce many young and promising pharmacists to leave their chosen avocation for others more remunerative.

Among the recent publications on this subject, those of three pharmaceutical authorities, equally prominent by experience, knowledge and standing, have attracted a wide attention, namely, those of Professor Dr. Phoebus, of Giessen,† of Professor Dr. Hlasiwetz, of Vienna, and of Mr. W. Danckwortt, of Magdeburg, formerly Chief Director of the North German Apothecaries' Association. The following synopsis of the remarks of the two last-named men may

* American Journal of Pharmacy, 1871, p. 389.

† Pharmac. Zeitung, Nos. 17, 35, 47, 67, 85 and 89, 1873.

serve to elucidate more fully their views of these vital questions and their bearings upon the future of pharmacy in Germany.

Prof. Hlasiwetz, formerly an apothecary, now Professor of the Imperial Polytechnic School of Vienna, in a recent lecture on Modern Pharmacy,"* said in substance :

"Until recently, chemistry had its ablest and most useful representatives among the pharmacists, and for a long time this profession has pre-eminently supplied the chairs of chemistry of the universities with professors to whom we owe the vast amount of labor and discoveries which were necessary to bring practical and theoretical chemistry to its present scope and position. But this has greatly changed by degrees, the consequent rapid progress has called forth a chemical industry of the most varied description and extent, which, in its rapid strides has substituted the methods of manufacturing on a large and commercial scale for those on a small scale in the laboratory of the pharmacist. This change in the scope and drift of pharmacy has deprived the pharmacist of one of the principal objects and profits of his legitimate business, and since the fact has become fully established that he cannot enter into competition with the manufacturer, neither in regard to quality or price, there is nothing left to his share than to dispose and retail the products of the former. Not only the whole series of medicinal chemicals and alkaloids are now supplied by the manufacturer cheaper and, as regards the latter substances, better, but also those pharmaceutical preparations which belong pre-eminently to the province of the pharmacist; as, for instance, fluid extracts, tinctures, syrups, ointments, plasters, etc.

"Since the inauguration of this sweeping change dates the decline of the so-called pharmaceutical chemistry, and all that the pharmacist yet applies is a moderate degree of analytical skill for the establishment of the identity and quality of the preparations as supplied by the manufacturer. And even this limited sphere of proficiency is encroached upon by the manufacturers by offering on the labels of their preparations brief instruction for ready tests, and by supplying pure and ready-made reagents, so that the tests may be made by any skilled and informed person.

"Our schools and universities still furnish a sound pharmaceutical education and a stock of chemical knowledge; but the truth is that

* Pharmac. Zeitung, No. 8, 1874.

these attainments, as a rule, do not bring fruit, for the reason that pharmaceutical practice has ceased to afford any longer the former compass and opportunity of application, nor a sufficient impetus to practically cultivate the acquired proficiency.

"Moreover, the advanced state of rational medicine has discontinued the use of many remedial agents, and has greatly limited not only the list of materia medica, but also the former liberal administration of medicines; the consequence of this restriction is a decrease of the legitimate business and income of the pharmaceutist; being formerly a remunerative pursuit, it hardly furnishes, any longer, a respectable living to a great many highly-educated men, and we see, therefore, the pharmacist enter more and more upon mercantile resources for subsistence, with the aim to gain, on the other hand, as a dealer, what the professional scope of his business falls short to supply; he enriches his stock with homœopathic and with patent medicines, and enters into competition with the dealer in fancy articles, with the perfumer, the confectioner, etc.

"The business of the pharmacist depends for the future largely upon the drift of the manufacturing business, which, when it should also extend its aim and scope to the production of the medicinal substances in ready-dosed and elegantly-prepared forms, will deprive the pharmacist, more or less, from the last remnant of his proficiency. This inroad has already commenced, and bids fair way to an increasing extent and to success; it tends to relieve the physician from the necessity of prescribing so many grains of Dover's powder, of quinia, of calomel, etc., to be rubbed up with sugar and divided into so many doses; he will merely have to direct his patient to buy a number of dosed capsules or tablets. He will soon find all the chief formulæ of his dispensatory provided in elegant forms and envelopes, disguising smell and taste, and both the physician and the patient will gladly dispense with the old, repulsive forms of mixtures, decoctions, powders, etc. The great number of vegetable drugs of uncertain value and variable quality, will be discarded, and will be replaced by the active principles, obtained from them in a pure and stable form, so that the materia medica of the rational physician will henceforth be like that of the homœopathist, ready prepared and dosed, and all emanating from the manufacturing establishment.

"When system and method will extend and consummate this mode of administration of the remedial agents, nothing will be left of the

pursuit of the pharmacist than a retail dealer of the products of the manufacturer of medicinal articles."

Mr. W. Danckwortt expresses himself in an article "On the Future of Pharmacies,"* thus: "I believe that after forty years pharmacy will have greatly changed its physiognomy; I do not entertain pessimistic views, and consider it an honor to have served for forty years in a profession which I esteem highly, but when I compare its present condition and prospects with those of forty years ago, I cannot but admit that pharmacy is on the decline, and will henceforth degenerate far more rapidly. But thirty years ago chemistry and botany were pre-eminently the sciences of the pharmacist; Berzelius, H. Rose, Liebig, Fresenius, Berg, Henkel, Mohr, and many others of equal fame, emanated from pharmacy. Now-a-days, chemistry has grown in extent and volume so vastly, and its practical application embraces such a wide compass, as completely to leave behind the pharmacist's sphere. Yet the pharmacist has maintained a comparatively high status of chemical knowledge and learning, and a comparatively wide compass of attainment is still required from him. But the fact is that these accomplishments have to be attained mainly to enable him to pass the examination which the State makes yet obligatory; after this, he has not any more the old arena to practically apply and profitably enlist his attainments, nor the former impetus, so that, in many cases, the knowledge acquired at the universities is gradually lost for want of application and encouragement. Formerly, the pharmaceutist used to be the legitimate expert in all forensic investigations; now the extent of knowledge and experience required are such as to exclude him in preference of the professional chemist. The pharmaceutical laboratory of yore has become a myth, and we must admit that most of the medicinal chemicals and pharmaceutical preparations can be obtained cheaper and better when manufactured on a large scale; many of them are now furnished by the manufacturer already dosed and labelled for ready dispensation and retail sale. And when we compare the prescriptions of our days with those of forty years ago, what a change, what a remarkable simplification! The whole array of the old-fashioned decoctions, infusions and mixtures have been discarded; morphia, codeia, quinia, digitalin, chloral-hydrate, atropia, and a number of other principles are the consummation of materia medica, and even the prescriptions for

* Pharmaceut. Zeit., No. 20, 1874.

these disappear more and more from the pharmacies, inasmuch as the physician carries their minimal solutions in his pocket for ready administration by subcutaneous injection, or orders them in tablets or sugar granules as supplied by the manufacturer or confectioner in lieu of the pharmacist.

"Moreover, the rapid progress of general culture, of the knowledge of the rational principles of life and health and the conditions of their maintenance, of the sanitary sciences and of hygiene and medicine, exercise a considerable influence upon the decrease of the use of medicines, for it cannot be denied that knowledge and culture counteract the principles and conditions upon which, to a great extent, the prosperity of pharmacy rests.

"When we have witnessed such changes within the comparatively brief space of forty years, who has the assurance to predict what, or if anything, will be left of pharmacy after another equally progressive lapse of forty years?"

It is not the aim of this essay to parallel the conditions and prospects of American pharmacy with those just described, nor to determine whether and how soon the same questions may come up here, or whether the present state of American pharmacy really justifies the exalted views of the future, as occasionally expressed in valedictories and similar addresses. In its trade relation it has practically the advantage over German pharmacy, inasmuch as it still stands upon the basis of a commercial trade, and cannot therefore be injured in a similar manner by being displaced from a professional basis, secured by a noble career of usefulness and achievements through more than two centuries.

As a natural consequence of the growth and extent of sciences, and the increase and diffusion of learning and a correcter knowledge of nature, which is the tendency of modern times, we must view the fact that an enhanced general, as well as special, education is becoming more necessary in all pursuits and gives the impulse to innovations and reforms, particularly in those pursuits which are based upon the knowledge of the laws of nature, and upon the application of the principles of physical and sanitary sciences, and that this agitation is felt in medicine and pharmacy, precisely as in other circles.

After the first abortive legislative attempt in several States of our Union in demanding directly, and without previous preparation, a higher qualification, the education of pharmacists, and in consequence

thereof a superior status of pharmacy, have made successful progress, and increased facilities for attaining this aim have been inaugurated by the establishment of, and increased attendance at, the various pharmaceutical schools.* In this advance movement, pharmacy stands, however, by no means alone; generalization and unity of sciences on the one hand, and education, scientific knowledge and higher intellectual culture on the other, are, as already stated, the demands of our time, and this tendency pervades in our country, also all classes of its population and all pursuits, and is practically exemplified in the increase and prosperity of all higher educational institutions,—the medical, polytechnic, commercial and other colleges,—and in the entire literature of the present day.

Pharmacy in this country will therefore, probably meet with fewer difficulties on its high road to improvement, and the less so, as it is in the happy position of profiting by the pharmaceutical experience and acquisitions of older countries, and particularly of Germany, without having to undergo the struggles and errors of its gradual development extending over two centuries. The problems which it will inevitably have to encounter with the progress of time and civilization, I have briefly referred to above, and they are more fully stated in Mr. Danckwortt's and Prof. Hlasiwetz's papers; aside from other more technical and less important arguments, they have been felt here likewise for some time, and have been repeatedly and timely expressed,† but appear not to have received due consideration.

The lively interest taken by the American people in progress and the questions of the times, its acceptation for new ideas and their prac-

* If no other, at least one result of high value must be acknowledged to be due to the continued agitation for, and the enactment of, laws regulating the practice of pharmacy, namely, the increased attendance of the pharmaceutical pupils at the courses of the colleges of pharmacy. Although this attendance is not yet dependent upon a preliminary examination and qualification, and though the want of sufficient primary education and knowledge is *a priori* prejudicial to the full value of a course of theoretical study compressed into so short a time, capable and assiduous young men will find at least the path pointed out, and receive the incitement for the further acquisition of knowledge, while American pharmacy will, for the next generation, be supplied with new productive heads and hands for its scientific continuance.

† Dan. C. Robbins, Annual Address, Proceedings Alumni Association, N. Y. Coll. Pharm., 1872, p. 34 and *ibid.*, 1873, p. 30.

Chas. C. Fredigke, in Chicago Pharmacist, 1874, p. 36, and Am. Journ. Pharm., 1874, pp. 209 and 265.

Dr. Streit, in Chicago Pharmacist, 1874, p. 72.

tical application leave no doubt that the modern popularized teachings of hygiene and of the sanitary and medical sciences, which are promulgated by the advanced schools of medicine and by popular literature,* as well as of medical skepticism will here find a fruitful soil, just as homœopathy has found its adherents not merely among the ignorant, but rather among the wealthier and educated classes of society. The consequences of such a popularization of a correcter knowledge of hygiene and of rational methods of preventing, preserving and restoring health without the former resort to unwise and excessive medication, must be the same here as in Europe, as far as the material emoluments of the pharmaceutical pursuit are concerned, and inasmuch as they will in time greatly diminish the income of the pharmacist, they will also be in direct antagonism with the demands of modern times for higher education, which requires increased expenditure of time, labor and money. All legislative restrictions and regulations will prove one-sided and without real and permanent value, as long as they aim to raise the claims for a higher qualification and standard only, without affording, on the other hand, some guarantee for a sure and remunerative application of the higher proficiency, and for the conditions necessary for the material prosperity of the practice of pharmacy. Compared to the physician and the tradesman, the pharmacist occupies an exceptional position ; the former applies his individual knowledge and skill without investment of capital or risk, and without any restriction ; the merchant chooses his wares according to demand and want, and can control his investments quantitatively and qualitatively ; he employs laborers or clerks with less knowledge and without responsibility ; his wares usually retain their value, and are less prone to deterioration. In this material age and concrete and practical country of ours, there cannot be expected for any length of time, an acquisition of talent and skill, or a permanent and steady elevation of a calling whose resources appear to be everywhere on the decline,† and which involves an amount of time, resignation and re-

*The Sanitarian, the Herald of Health, and the Journal of Health, are monthlies published in New York. See, also, the annual Proceedings of the American Public Health Association ; also, Youman's Popular Science Monthly, No. 10, p. 422 ; No. 12, p. 665 ; No. 22, p. 421, and numerous similar publications.

† The practice of our profession is becoming more arduous,—its scientific relations more complicated as civilization and science advance, while its legitimate rewards diminish, because the scope of the business contracts, while compe-

sponsibility as no other pursuit requiring a similar amount of learning, and which, for superior attainments and proficiency, does not offer an adequate equivalent in the shape of pecuniary compensation.

These are some of the problems which American pharmacy will likewise have to encounter sooner or later, and in the discussions of which the recourse to the whole truth will unquestionably prove the best remedy for the evils of imperfectly stated truth. They certainly deserve earnest consideration and invite our congenial interest in the pending strives of pharmacy in Germany for its existence and continuance. Whatever may be the future fate of pharmacy, that of Continental Europe has the high merit of having fulfilled its mission of culture, and particularly in developing and applying the natural sciences, and mainly chemistry, and that its achievements are not perishable, but on the contrary will forever be useful in the further evolution of the healing art and of applied chemistry in general.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Detection of Turpentine in Liquid Storax. Hager recommends to fuse the storax in a test-tube placed in a water-bath, to add half its volume of absolute alcohol, and effect solution by agitation; this is then agitated with several times its volume of petroleum benzin, and the operation repeated twice. The decanted benzin solutions are united and evaporated in a water-bath, from a tared vessel. The residue should weigh 45 to 55 per cent. of the storax; it should be colorless, with a bluish opalescence, and of an agreeable odor. If turpentine be present, the residue will be yellowish, of the odor of the turpentine, and larger in weight.—*Pharm. Centr. Halle*, 1874, *No.* 21.

The Volatile Oil of the Root of Spiræa ulmaria is not salicylous acid, as stated by Wicke a number of years ago; Dr. R. Nietzki found it to be a compound ether of salicylic acid, which is heavier than water, has the odor of gaultheria oil, and is probably identical with it. 20 lbs. of the fresh root yielded, on distillation with coho-

tition increases and it is evident that, unless we can arrest or overcome these, we cannot long retain in our ranks a superior or desirable personnel. The character of any pursuit depends upon the men who fill it, and we cannot have men of culture and attainments unless they are adequately rewarded. (D. C. Robbins, annual address, N. Y. Alumni Assoc., 1872–73.)

bation, little more than one gram of the oil, which is contained in the rhizome as well as in the rootlets. The flowers, it will be remembered, contain salicylous with salicylic acid.—*Archiv d. Pharm.*, 1874, *May*, 429–433.

A New Method for the Estimation of Tannin has been proposed by A. Terreil; it is based upon the absorption of oxygen by tannin in the presence of alkali; and, from the quantity absorbed, which is determined by measuring it in a graduated cylinder, the amount of tannin is readily calculated. The author found that 0·1 gram of tannin absorbs 20 cubic centimetres of oxygen. The apparatus and manipulation is described in *Journal de Pharm. et de Chim.*, 1874, *June*, p. 445–447. Although vegetables contain other principles which, like tannin, absorb oxygen, the author believes the process to be sufficiently accurate for technical purposes.

Artificial Vanillin has been prepared by Tiemann and Haarmann from coniferin, by heating its aqueous solution with a mixture of bichromate of potassium and sulphuric acid in a flask connected with a backflowing cooler. After cooling, a little resin is separated by filtration, and the liquid is agitated with ether; on evaporation, a yellow oil is left, which crystallizes in a few days. After treatment with animal charcoal and recrystallization from water, beautiful crystals, with the odor and taste of vanilla, are obtained, which fuse at about 80° C. (176° F.), are readily soluble in ether and alcohol, sparingly soluble in cold, more readily in hot water. Analysis gave results agreeing with the formula $C_8H_8O_3$. Carefully heated, it sublimes without decomposition; it has a strong acid reaction, and gives with bases well-characterized salts.—*Pharm. Zeitung*, 1874, *No.* 41, from *Ber. d. d. Gesellschaft.*

Volatile Oil of Tropæolum majus. A. W. Hofmann found that the portion of this volatile oil commencing to boil at 160° C. had a disagreeable odor and contained sulphur. The largest portion, distilling at 226° C. (377° F.), has the formula C_8H_7N and is the nitrile of phenylacetic acid.—*Ber. d. d. Chem. Ges.*, 1874, *p.* 518.

The Volatile Oil of Nasturtium officinale is, according to A. W. Hofmann, a mixture which commences to boil at 120° C. The main portion is obtained at 261° C. (440° F.), and has at 18° C. the specific gravity 1·0014; it is the nitrile of phenylpropionic acid, and has the composition C_9H_9N.—*Ibid.*, *p.* 520.

The Volatile Oil of Cochlearia officinalis was found by A. W. Hofmann to be the mustard oil of the butylic series, having the composition $C_5H_9NC = C_4H_9, CS, N$. It was obtained synthetically, not from the normal, but from the secondary butylic alcohol (methyl-ethyl-carbinol), and had then the characteristic odor of the plant, a specific gravity of ·944 at 12°, and a boiling-point of 159·5° C. (319° F.)—*Ibid.*, 508–514.

A Very Active Preparation of Ergot, which is particularly adapted for subcutaneous injection, is suggested by Dr. Wernich, of Berlin, who proposes to exhaust the ergot with ether, strong alcohol, and finally with water; the infusion is then dialyzed through parchment paper, and the solution evaporated; this extract, after acidulation with sulphuric acid, was mostly soluble in alcohol, and when again carefully neutralized by soda, yielded to weak alcohol all its active properties. Subcutaneously injected, the author obtained good results promptly, and the inconveniences attending the hypodermic use were slight and disappeared rapidly.—*Apothekerzeitung*, 1874, *No.* 17.

ON THE DETECTION OF ALOES AND OTHER BITTER DRUGS.

By O. Bach.*

The difficulty of analyzing many nostrums has induced the author to make a series of experiments and to study particularly the analytical relations of the bitter principles of aloes, colocynth, wormwood, gentian, agaric, scammony and jalap resin. The active principles of the first four are soluble in water; of the others, those of agaric and scammony dissolve in ether, jalap resin remaining insoluble in both menstrua.

An aqueous solution of aloes yields with sugar of lead a voluminous yellow precipitate, with mercurous nitrate, after some time, a pulverulent dirty-colored precipitate. The aqueous infusion of colocynth yields with mercurous nitrate a flocculent, afterwards gray precipitate, conglomerating on boiling; dissolved in nitric acid and treated with ammonia, the filtrate is golden-yellow, and after evaporation to dryness, insoluble in acetic acid, but colored bright-red with concentrated sulphuric acid at a moderate heat, and cherry-red with Froehde's test (conc. sulphuric acid, 1 c.c.; molybdate of sodium,

* Condensed from "Journal für praktische Chemie," 1874, p. 188–193.

·001 gram). Wormwood is soluble in water, with a brown color; it gives with mercurous nitrate a dirty-yellow precipitate, becoming gray on boiling; with subacetate of lead a brown-yellow, and with acetate of barium a brown precipitate; H_2SO_4 colors wormwood brown, Froehde's test at first brown, becoming green, and finally violet. Gentian yields a yellowish opalescent infusion, producing with mercurous nitrate, after some time, a very slight pulverulent precipitate; with acetate of barium from ammoniacal solution a flocculent precipitate, which yields with H_2SO_4 and HNO_3 a yellow, and with potassa a handsome golden-yellow solution. The resinous portion of agaric is soluble in alcohol and partly in hot water, yielding with the latter an opalescent liquid; also in solution of soda, from which it is reprecipitated by acids. It is insoluble even in warm HNO_3. Cold H_2SO_4 dissolves it, with an orange color, becoming brown on heating; nitric acid added to this solution causes decoloration and separates colorless floccules. Scammony dissolves with difficulty* in ether, separating white flocks; readily in alcohol, with a greenish-yellow color; insoluble in solution of sodium carbonate, swelling to a yellow mass in nitric acid, readily soluble in H_2SO_4, being orange-colored at first, and becoming cherry-red after some time. Jalap resin is insoluble in water and ether, H_2SO_4 gives a brown solution, becoming blood-red after awhile and emitting the peculiar odor of jalap.

On examining a medicine for any of the above substances, it is, if necessary, evaporated to dryness, extracted with alcohol, and again evaporated. The dry powdered residue is exhausted with cold water, if necessary, concentrated by evaporation in a water-bath, cooled, treated with mercurous nitrate in excess, rapidly filtered and washed. The precipitate is dissolved in warm diluted nitric acid, when colocynth will be indicated by the yellow color of the liquid and some insoluble flocks; in the presence of wormwood the flocks are scarcely recognizable, and the liquid is brown. Excess of ammonia precipitates the mercury, but dissolves colocynth and wormwood. The filtrate is evaporated to dryness and treated with warm acetic acid; wormwood will be dissolved, and colocynth remains behind, the latter giving with H_2SO_4 and with Froehde's reagent the above-mentioned color reactions. The acetic solution, on evaporation, leaves a yellowish-brown residue, to be identified by Froehde's test as stated above.

* ? Editor Amer. Journ. Pharm.

The filtrate from the mercurous precipitate is treated with ammonia, filtered and acetate of barium added; a precipitate indicates gentian, an orange-red color of the liquid points to aloes. After evaporation to dryness, the residue is exhausted with alcohol, the liquid evaporated, and the residue treated with warm HNO_3. The yellowish-red solution is evaporated to dryness and dissolved in little water, when it will yield a blood-red solution with potassa and glucose, if aloes be present. The precipitate obtained by acetate of barium, containing gentian, is exhausted with alcohol, evaporated and treated with H_2SO_4, HNO_3 or HKO as above.

The residue of the original substance left after treatment with water may contain the resins of agaric, scammony and jalap; to separate them it is treated with ether, the solution evaporated, and the residue treated with warm solution sodium carbonate. If scammony be present, a residue will be left, swelling with HNO_3 to a yellow mass, but soluble in H_2SO_4, with an orange-red color, becoming blood-red on standing. The soda solution is precipitated with an acid; the resin of agaric is insoluble in HNO_3, but dissolves in H_2SO_4, with an orange color.

The resin of jalap, remaining behind after treatment with water and ether, is recognized by its behavior to H_2SO_4, as given above.

A NEW ADULTERATION OF PORT WINE.

By E. B. Shuttleworth.

Having recently had occasion to test a number of samples of port wine, I principally directed my attention to the detection of foreign coloring matter as affording the best evidence of falsification. On applying the test recommended by Lapeyrere,* five out of the fourteen samples examined gave colorations differing from the remaining nine. This test appears to be of some value, but I have no doubt that considerable experience is required before a definite and satisfactory conclusion can be arrived at. Filtering paper is saturated with a solution of acetate of copper, dried, and dipped in the suspected wine. If genuine, a grayish rose-red color is produced. Logwood is said to give a distinct sky-blue, while other coloring matters give modifications of the original natural tint.

On examining by the spectroscope, the nine samples before alluded to, the spectra produced showed no special characteristics, and

*Jour. de Pharm. et de Chimie.

this would go to confirm the statements of Sorby* and Phipson† who found that the coloring matter of the grape gave no absorption bands, but only a general darkening of the spectrum. The five remaining samples of wine gave decidedly different spectra, and one of them so peculiar that I was led to suspect the presence of fuchsin.

A further examination by other tests rendered this fact unmistakeably evident, and I have since ascertained that a mixture of magenta and a blue coloring matter known to the trade as azalin, are largely employed for the purpose of coloring cheap made-up wines. These colors are put up and sold by the dealers in wine and spirit doctoring materials, and are sold at exorbitant prices.

In order to detect the adulteration, I have found the following method to be satisfactory, and very easy of application. To a portion of the suspected wine, placed in a test tube, add an equal volume of fusel oil; agitate well and allow the mixture to separate, when, if magenta be present, the supernatant layer will be more or less tinctured of a characteristic pink or purple color. Genuine port, when so treated, does not impart to fusel oil any of its color, so that the slightest coloration may be taken as certain evidence of adulteration. If amylic alcohol be not at hand, ether may be substituted, but does not answer nearly so well.

Considering the dark color which factitious port must be made to assume, and the large quantity of such wine that is liable to be taken at one sitting, it is evident that the presence of these poisonous coloring matters might produce serious, if not fatal results.—*Canadian Pharm. Journ., June,* 1874.

NOTE ON A SOPHISTICATION OF PAREIRA ROOT.

By John Moss, F .C. S.

Late Demonstrator in the Laboratory of the Pharmaceutical Society.

It was my intention, at the last evening meeting of the Pharmaceutical Society, to have brought before the notice of the members present a sophistication of pareira brava which has not, so far as I know, been previously announced. With this object two specimens had been placed on the table, but the press of other matter crowded out every opportunity of speaking about them.

* Jour. of Microscopical Science, Vol. ix, p. 338.

† Jour. of Chem. Soc., Feb., 1870.

The specimens were taken from a bale of pareira brava, the contents of which were professedly the root only of *Chondodendron tomentosum*; a cursory inspection, however, was sufficient to show the presence of two totally different structures. One of these, which is hard, heavy, and of a dark-brown color, is plainly the root described by Mr. Daniel Hanbury;* the other, which is lighter in weight, paler in color, and much less compact in texture, is as evidently a stem—for the majority of pieces are covered with an easily seen bark, the hue of which is variegated by whitish patches of microscopic lichens and occasional green tufts of moss. A comparison of this stem with an authenticated specimen in the museum of the Pharmaceutical Society, leaves no doubt that it is deriveed from *C. tomentosum.* On the pieces of stem presented by Messrs. Corbyn & Co., the characteristic warts were shown in a marked manner.

The stem is sickly sweet, yet slightly bitter in taste. In the root the bitter taste is very much intensified, and indeed predominates over every other. This difference is best noticed by appropriate comparison of the respective infusions.

The object of this note is to induce pharmacists to examine their stock of pareira, and so prevent the substitution for the root, of the much less active, if not altogether inert, stem. In my opinion, few parcels will be found free from the admixture here described; in the first place, the admixture occurs in the original packages, and in the second, it is very unlikely that experience of this kind is confined to one house. I may say, in conclusion, that two bales, the aggregate of which were 137 pounds, gave 73 pounds of stem—over 50 per cent.—*London Pharm. Journal*, May 16, p. 911.

PERMANGANATE OF ZINC.

By Huskisson Adrian, F. C. S.

A recent report of the Medical College of Berlin contains an account of the use of this salt for injections. It is stated to be much more effective than sulphate of zinc. The following is the usual method of preparing it: Permanganate of silver is thrown down by mixing hot concentrated solutions of permanganate of potash and nitrate of silver, and is afterwards levigated with a solution of chloride of zinc. The chloride of silver is then separated, and the perman-

* Pharm. Journ., Aug. 2, 1873, p. 81, and Aug. 9, p. 102. American Jour. Phar., 1873, p. 449.

ganate of zinc is obtained by concentrating the solution cautiously. It will be seen that this is a troublesome and wasteful process; but I have not yet been able to find one to replace it with advantage. To neutralize permanganic acid with carbonate of zinc *sounds* easy, but this acid has an unpleasant habit of exploding when prepared in the usual way from the permanganate of potash. A modification, also, of the process for making this last-named salt has not given me satisfactory results.

Permanganate of zinc is a dark-red crystalline powder, similar in its general properties to the potash salt. The maximum strength in which I have have heard of its administration is one grain to an ounce of water. Linen dipped into a solution of this strength is stained pink; but the color fades within five minutes to a light-brown, hardly perceptible.

The report to which I have already alluded contains a pathetic account of how some manufacturer imported into Prussia, under the name of permanganate of zinc, a preparation which turned out to be sulphate of zinc colored with permanganate of potash. I find by experiment that a mixture of one part of powdered sulphate of zinc with two parts of permanganate of potash makes an excellent imitation of the zinc salt, although a few drops of a solution of chloride of barium expose the fraud at once. I mention the above simple test in case the same manufacturer favors English pharmacists also with some specimens of his ingenuity. Permanganate of zinc being at present sold at twelve times the price of the potash-salt, the motive of the substitution is sufficiently obvious.—*The Chemist and Druggist* [*London*], *May* 15, 1874.

SOME NEW PREPARATIONS OF PHOSPHORUS WITH GENERAL REMARKS AS TO THEIR THERAPEUTICAL VALUE.

By Dr. Routh.

In a paper read before the Medical Society of London, April 27, 1874, the author stated that this was a corollary to his former communication on "Overwork and Premature Mental Decay." He then had mainly spoken of two preparations of phosphorus, viz., the solutio phosphori medicati, a solution of phosphorus in almond oil, with a little mucilage and essential oil of the strength of one-sixth of a grain of phosphorus to the drachm; and the phosphide of zinc, both used

by Mr. Hammond, of New York. In speaking of the effects of phosphorus as a drug, it was best to take this solution as a standard, and this pointed out the difference in the action of the other preparations. Dr. Routh then spoke of the effects of phosphorus, which were those of a stimulant in small doses, sedative, and producing a pleasant sensation of warmth, relieving neuralgia, and effective against certain obstinate skin diseases, such as eczema and acne, and he thought it retarded the progress of cancer. It was also an aphrodisiac, and appeared to improve the mental qualities if deteriorating. In larger doses it acted as an acrid poison, the peculiar feature being a burning sensation in the mucous tract, and whenever this symptom appeared it was a proof that the medicine had been carried far enough. With some persons it acted suddenly, producing even after the first dose sickness, faintness, and great stomach pain. Idiosyncrasy alone could account for this, and possibly decomposition. For these reasons Dr. Routh recommends the use of sperm oil, or purified neat's foot, in lieu of sweet almond oil; five drops of this solution added to a teaspoonful of cod-liver oil improves the action of the latter in proper cases. The phosphide of zinc has been said to be inert, because insoluble, but it is easily assimilated. Rubbed up in a mortar it emits the characteristic garlic odor, and burns spontaneously when thrown over a flame. It is a weak preparation, and has been safely given in doses of one grain three times a day. Like other preparations of phosphorus, it is apt to clog up the liver, and must then be suspended for a few days. Chloro-phosphide of arsenic is prepared by bringing pure hydrochloric acid into contact with phosphorus and arsenic in a fine state of division. While the phosphide is insoluble the chloro-phosphide is very soluble. The solution is of a clear yellow-green and pleasant taste. It is decidedly antiperiodic and effective in cases of neuralgia. This solution contains 10 grains of arsenic, and 16½ of phosphorus to the ounce; the dose is therefore 3 to 5 minims *ter die.* It can be largely diluted, and the author prefers one that is regulated at 15 drops. The syrup of phosphorus contains gr. $\frac{1}{10}$th in the ℥i. The phosphorus should be added in a pure state, and finely divided with caution. It is very nice to the taste; dose, 20 to 30 min. In cases of poisoning by phosphorus, Dr. Routh recommends emetics and an antidote in the form of turpentine, and in conclusion remarked that the exhilarating effects of the drug gained upon patients, and care must be taken lest in this way we introduce a new form of dram-drinking.—*Med. Press and Circ., May* 27, 1874.

IMPROVED FORMULA FOR CHARTA SINAPIS.

By A. W. Gerrard.

Dispenser and Teacher of Pharmacy to University College Hospital.

The formula, given in the "Additions to the Pharmacopœcia," for the preparation of mustard paper is unsatisfactory and expensive. The proportion of solution of gutta-percha necessary to render the ounce of mustard ordered sufficiently fluid for coating is ten drachms. This would contain more than a drachm of gutta-percha, which, when it is applied to the paper and the chloroform has evaporated, gives the surface of the mustard a glossy, varnished appearance. In fact, the gutta-percha acts as a varnish, much retarding the absorption of moisture and the development of the essential oil upon which the activity of the paper depends. Another objection to gutta-percha is its insufficient adhesive power, for the coating cracks and peels from the paper after but slight handling.

With the object of remedying these objections, I made a trial of a solution of india-rubber in benzol as a menstruum; for I judged from its physical properties much less of this than of gutta-percha would be required to keep the particles of mustard cohesive, and at the same time the action would be retarded only to a minimum degree. I found it well answered my intention. After several experiments to determine the most suitable proportions, I have adopted the following:

Take of

Caoutchouc, ...	1 part.
Benzol, ...	49 parts.
Black mustard, in powder, a sufficiency.	

Dissolve the caoutchouc in the benzol; then stir in the mustard till of a proper consistence for spreading on paper.

In this, as also in the B. P. form, the presence of the fixed oil in the mustard gives the back of the paper a greasy appearance. Moreover, its removal, which might be effected either by pressure or by percolation with benzol, would be an advantage, not only as removing the cause of this greasiness, but it would render the mustard more active.

Papers spread with a mixture made according to the form I have here given, have a dull, smooth surface, and the mustard adheres well together, although it contains only one-fourth as much india-rubber

as the British Pharmacopœia formula does gutta-percha. The above preparation readily absorbs water and develops its activity. A piece applied to the arm gave evidence of its presence in less than two minutes, whilst a piece of the B. P. preparation required seven minutes, its full effect being comparatively slight. An estimate of the cost of the two forms shows that a Charta Sinapis prepared as suggested above could be made for one-eighth the expense of the B. P. preparation.—*Pharm. Journ. and Trans.* [*Lond.*], *May* 9, 1874.

PILL COATING.

By J. A. Cope.

The introduction of pills covered with a tasteless kind of enamel, which is perfectly soluble and harmless, is certainly a step towards elegant pharmacy, and has many great advantages over the old method of dusting pills, to prevent their sticking together and to mask the taste. The manufacture of pearl-coated pills has been carried on extensively by several firms during the last few years, and there appears to be a growing demand for the product. The bulk of these pills reach the public through medical men who send out their own medicine, and who, no doubt, are glad to be relieved of the troublesome business of pill-making. And if medical men educate their patients to prefer their pills made tasteless and as attractive as possible, it will not do for pharmacists to be behind the times. They must be able to compete on the small scale with those firms who make it their business.

Medical men are not to be questioned as to the remedies they prescribe, and few pharmacists would care to acknowledge "they did not make their own pills, but obtained them from a reliable source, and believed them to be of the purest ingredients." And it is desirable that even stock pills should be prepared on the premises. The secret of pill-coating does not appear to be in what the coating consists of, which, in most cases, is powdered French chalk, but in the way it is put on.

The following simple method I have found to give very satisfactory results, and produce pills having an elegant appearance which will bear comparison with those now in the market.

The ingredients are powdered French chalk and thin mucilage of gum arabic—one part mucilage of the Pharmacopœia and two parts

distilled water answers very well. The apparatus used may be found in any pharmacy, namely, a small evaporating basin, having a flat bottom, capacity eight or ten ounces, two covered gallipots, one holding four or six ounces, the other double that size, and a pill-tray.

The pills to be coated should be of good consistence, not too hard, and rolled perfectly round, to ensure their being of good shape when finished. It is well to use French chalk in the place of starch-powder when rolling them out.

Into the small gallipot put some of the chalk, and in the basin put as much mucilage as may be necessary to thoroughly moisten the quantity of pills to be coated (from six to six dozen pills may be done conveniently at one operation). Next put in the pills and shake them round horizontatly until sufficiently moistened, then turn them into the pot containing the chalk, and shake them round so as to get well covered with powder; turn them on the pill-tray and allow to remain a short time, and lastly place them in the empty gallipot and and shake round, so as to polish them and shake off the superfluous powder.

To coat pills by this method occupies about the same time as to silver them, but for stock pills, which may have to be kept for some time, it is better to repeat this process, taking care to have the first coating dry before a second is put on. This will be found to give them a firm pearl-like exterior, which preserves the pills of good shape and consistence, and prevents any change that would be likely to occur through lengthened exposure to the atmosphere.

A few trials will suggest the best way of manipulating, and enable anyone to produce a fair sample of coated pills.

Derby.

Since the above was put into type, we have been favored with a note on pill coating by Mr. John Whitfield, F. C. S., of Scarborough. The details of the manipulation are essentially the same as those described by Mr. Cope; but as the result of experiments in this direction, Mr. Whitfield uses a varnish made as follows:—

Common amber resin, . .	1 to 2 drachms.
Spirits of turpentine, . . .	1 drachm.
Oil of geranium, . . .	20 minims.
Absolute alcohol, ...	To make 1 ounce.

The oil of geranium may be omitted, or substituted by other essential oils at discretion. The pills should be made as hard as possible.

Mr. Whitfield remarks that some pills take the coating at once, others not so readily. In the latter case the powder should be sifted off, and the varnish applied again exactly as at first. A second coat seldom fails, and it increases the bulk of the pills but slightly. He is of the opinion that there can be no objection to the resinous varnish on the ground of insolubility, as he finds when the coated pills are placed, in water the covering cracks and exposes the pill more rapidily than sugar coating.

Pills containing much essential oil are not well adapted for coating. —*Pharm. Journ. and Trans.* [*London*], *May* 30, 1874.

THE DECOMPOSITION OF MILK BY KEEPING.

By Edward Lawrence Cleaver.

Assistant-Demonstrator in the Laboratories of the Pharmaceutical Society.

At a recent prosecution under the Adulteration of Food Act, it was stated in the evidence for the defence that unless milk be analyzed before it is six hours old the results are not reliable, implying that decomposition proceeds at a rate sufficiently rapid to destroy a large portion of the solid matter after that period of time. This is really a most important point, because it is rarely possible to analyze samples within the time above stated; with the object, therefore, of gaining some definite information on this subject, I made a series of experiments, the results of which are stated below.

There are several points which exercise some influence on the decomposition of milk, namely:

1st. *Temperature.*

2d. *Exposure to the atmosphere.*

3d. *The relative poverty or richness of the milk.*

The present note only gives the results of experiments on an average sample of milk at the ordinary temperature; but I hope at some future time to publish a series showing the behavior of different samples under varying conditions. A quantity of milk, purchased early in the morning, was divided into several small portions and placed in bottles which were tightly corked. One portion was analyzed immediately after purchase, and the rest from time to time. The results, taken at a temperature of 70° F., were as under:

No.	Date of analysis.	Total Solids.	Fat.	Ash.
1	April 30th, 1874.	12·48	3·6	·7
2	May 1st, "	12·37	3·6	·7
3	" 2nd, "	12·18	3·6	·7
4	" 4th, "	12·12	3·6	·7
5	" 6th, "	12·09	3 6	·7
6	" 8th, "	12 07	3 6	·7
7	" 12th, "	11·97	3·52	·7
8	" 18th, "	11·97	3·4	·7

It will be seen from these experiments, extending over a period of three weeks, that decomposition does not; in an average sample, proceed at a very rapid rate; and that in an analysis made even after two or three days the error would be inappreciable.

It was suggested to me that if milk which had become sour were neutralized with soda, the volatile acids formed would be retained instead of being volatilized by the heat, and that the solid residue would therefore not suffer loss. On trying this plan, however, no difference was obtained from previous results.

But there is one source of loss to be guarded against when milk becomes very old, and that is the deposition of mineral matter of some kind on the sides of the containing vessel, to which it adheres very firmly; under the microscope it has a distinct crystalline structure, but at present I have not been able to determine the exact nature of the compound.

Varieties.

Oatmeal, Bone and Muscle.—Liebig has shown that oatmeal is almost as nutritious as the very best English beef, and that it is richer than wheaten bread in the elements that go to form bone and muscle. Professor Forbes, of Edinburgh, during some twenty years, measured the breadth and height, and also tested the strength of both the arms and loins of the students in the University—a very numerous class, and of various nationalities, drawn to Edinburgh by the fame of his teaching. He found that, in height, breadth of chest and shoulders, and strength of arms and loins, the Belgians were at the bottom of the list; a little above them, the French; very much higher, the English; and highest of all the Scotch and Scotch-Irish, from Ulster, who, like the natives of Scotland, are fed in their early years with at least one meal a day of good milk and good oatmeal porridge.—*Sanitarian for June.*

Poisoning by the Root of Phytolacca Decandra.—Dr. Rawlings Young, of Corinth, Miss., writes that he was called, on the 21st inst., to three children—nine, six and four years old—poisoned by eating the root of *Phytolacca decandra.* They ate this at 11.30 A. M., at 12 M. took a hearty dinner, and in an hour after commenced purging and vomiting. At 4.30 P. M., when he first saw them, the purging had ceased, but free vomiting occurred at intervals of twenty or thirty minutes; great dilatation of pupils; pulse rapid and very feeble, inspiration short and sighing. When completely aroused from their narcotism they complained of intense epigastric pain, great thirst and chilliness. The treatment consisted of hot baths, sinapisms, small doses of brandy frequently repeated; and they all recovered, though continuing to vomit until 6 A. M. the next day and complaining of vertigo and epigastric tenderness for a day longer.—*American Practitioner, June,* 1874.

On Gurjun Oil in Skin Diseases.—At a late meeting of the Medical Society of London, Professor Erasmus Wilson showed some of this new remedy, and stated that this material, which was also called "wood oil," was an oleo-resin, obtained from several species of the *Dipterocarpus*, an immense tree growing on the Malayan coast of the Bay of Bengal, where it was so common as to be used instead of paint, for houses and ships. About twenty years ago this oil was introduced into England as a substitute for copaiba balsam, and was reported to have the same medicinal properties. Opinion was, however, divided on this point, and the gurjun oil did not succeed in securing a place in the Pharmacopœia. In March, 1873, Dr. Dougall, of the Indian Medical Service, took charge of the convict establishment of the Andaman Islands, when he found twenty-four of the prisoners suffering from leprosy. He was deeply impressed with the misery of these poor people, and realizing the impracticability of availing himself of all known methods of treatment, he hit upon the idea of trying the gurjun oil, both as an internal and external remedy, and determined upon giving it a six months' trial. He closed the experiment in November, by a report, which was kindly placed in Mr. Wilson's hands by Sir Ranald Martin, and used in his lectures before the College of Surgeons. Dr. Dougall's method was to have the patients washed thoroughly in a neighboring stream, using dry earth instead of soap. They were then made to rub themselves for two hours with a liniment composed of gurjun oil and lime-water, one part to three, and to swallow ʒij of the balsam also combined with lime-water. After this they had their breakfast, and were set to any work they were capable of doing. In the evening the same process was repeated, except the washing. The effects of this treatment, at the end of six months, were marvellous. Neuralgic pains were allayed, sensibility was restored to the anæsthetic skin, tubercles subsided, and ulcers healed. Dr Dougall was astonished at the energy of these formerly helpless ones. Mr. Erasmus Wilson remarked that he had used a liniment composed of equal parts of the gurjun oil and lime-water, in cases of painful eczema, in lupus, and in cancer, with very encouraging results, and stated that Mr. Hancock had applied it in a case of cancer of the skin, with the effect of dispersing tubercles and healing ulcerations; but its

most useful property was that of relieving pain. A lady in constant pain from cancer of the integument who had been unable to sleep, without narcotics, for weeks, was relieved of all suffering, and enabled to sleep, by means of this liniment. Mr. Wilson suggested that this very simple remedy deserved a trial at the hands of the profession, and believed that it would be found a valuable agent of cure in many affections where the skin was painfully attacked.—*Med. and Surgical Reporter, June* 13, 1874.

Jaborandi, a New Medicine.—A new medicine—with marvellous virtues, according to its sponsors—has been introduced and experimented with at the Hospital Beaujon, Paris. An account of the action and characters of the medicine appears in the "Répertoire de Pharmacie" of March 25, from which we condense the following particulars. Dr. S. Continho, of Pernambuco, who claims to have discovered the properties of the plant, induced Prof. Gubler to make a trial of it, and the account given by that eminent physician corresponds exactly with the claims put forth by Dr. Continho.

The leaves and little twigs of the plant are broken up, and from four to six grams infused in a cupful of warm water. The infusion may be taken warm or cold, and in about ten minutes after administration the patient breaks out into a violent perspiration, which continues for four or five hours, and which is so thorough as to necessitate several changes of linen. At the same time a most abundant flow of saliva is promoted, so abundant, says M. Gubler, that speech is rendered almost impossible. He asserts that he has known patients eject *more than a litre* in less than two hours. Occasionally the medicine has induced diarrhœa. Its action is more rapid and more thorough if taken warm, and if the patient is well covered up in bed, but its effects are none the less certain under quite contrary conditions.

MM. Continho and Gubler justly assume that there is a great future for a drug of such capabilities as this *jaborandi* seems to possess. According to Prof. Baillon, the plant belongs to a species of the rue family, the *Pilocarpus pinnatus*: *jaborandi*, it seems, is the Indian name for the plant. M. Continho slightly shakes our confidence in the miraculous power of his *protegé* when he tells us that it is to be found in the interior of some of the northern provinces of Brazil, an expression which seems to bear a relationship to Dr. Bliss's famous condurango formula, the herb which was only of value when procured "from the almost inaccessible slopes of the Andes." We shall hope for further enlightenment and evidence concerning this energetic diaphoretic.—*Chemist and Druggist* [*Lond.*], *April* 15, 1874.

Emulsion of Raw Meat.—We quote from the "Répertoire de Pharmacie" a formula for the above, which was given by its inventor (M. Yvon) at a meeting of the Société d'Emulation pour la Science Pharmaceutique. The object was to provide an agreeable means of administering raw meat, a remedy much in fashion with some of the Continental physicians. M. Yvon takes

Raw meat,	250 grams.
Sweet almonds,	75 "
Bitter "	5 "
White sugar,	80 "

The almonds are blanched and the whole beaten up in a marble mortar until a rose-colored homogeneous paste is obtained. This is said to be of very pleasant flavor and readily taken by sick persons. It may easily be made into an emulsion with water, which will not unmix for twenty-four hours: the emulsion can be made still more nourishing by the addition of the yolks of two eggs and by being made up with milk instead of with water.—*Ibid.*

Adulterated Honey.—A writer in the Boston "Cultivator" finds that most of the so-called strained honey sold in bottles is composed as follows: Cane or other sugar is melted in a decoction of slippery elm bark in water. Some manufacturers use, instead of elm, a solution of gum arabic and starch, to give it consistency and save sugar; but this last does not resemble honey so much when dropped, as it lacks the stringy appearance. These mixtures, with or without the addition of a little cheap Cuban honey, are flavored with essence, and the mess is ready for sale. The only true way to obtain real honey is to buy it with the comb.—*Scientific American, June* 27, 1874.

Cement for Aquaria.—An adhesive cement for aquaria may be made, according to Klein, by mixing equal parts of flowers of sulphur, pulverized sal ammoniac, and iron filings, with good linseed oil varnish, and then adding enough of pure white lead to form a firm, easily worked mass.—*Ibid., May* 2, 1874.

Pharmaceutical Colleges and Associations.

Charleston, S. C., Pharmaceutical Association.—Some time ago it was proposed to organize a pharmaceutical association for the State of South Carolina; but the committee having the matter in charge failed to obtain a charter from the Legislature, and a permanent organization was not effected. The pharmacists of Charleston now contemplate to form a society, and at a recent meeting a committee (G. J. Luhn, G. W. Aimar, C. F. Panknin, P. Wineman and E. S. Burnham) was appointed to report upon a general plan. The effort, we trust, will prove a success, and be followed by similar earnest attempts in the other States and larger cities in which a union of pharmacists has as yet not been effected.

The State Pharmaceutical Board of Kentucky has been organized as follows: John J. Frost, Lexington, President; Vincent Davis, Louisville, Secretary and Registrar; C. Lewis Diehl, Treasurer and Chairman of Executive Committee, Emil Scheffer, John Colgan of Louisville, J. J. Woods, Maysville, and J. M. Gilson, Paducah.

We are pleased to learn that the registration of pharmacists progresses satisfactorily, and that the law has been so favorably received that its provisions are likely to be extended in a few years so as to embrace the entire State. The prospects for the organization of a State pharmaceutical association appear to be very favorable, and we hope will be stimulated by the next meeting of the American Pharmaceutical Association, which will be held in the City of Louisville in September next.

St. Louis College of Pharmacy.—We rejoice to see the good work of pharmaceutical regulation make such favorable progress. St. Louis has now been added to the number of large cities in which such regulation is attempted. The law, as approved February 2d, gives the above-named college the right to elect a board of pharmacy, consisting of five members, the other provisions of the law being similar to those of the older ones. The first board has been organized as follows: Theo. Kalb, President; Justin Steer, Secretary; Chas. Habicht, Francis X. Crawley and J. M. Good.

St. Clair Pharmaceutical Association of Southern Illinois.—At the regular quarterly meeting, held June 9th, the reception of a set of Proceedings of the American Pharmaceutical Association, from the Executive Committee of this body was announced, and a vote of thanks passed unanimously. The following delegates to the next meeting of the National Association were then appointed: Wm. Feickert, Wm. Kempf, Jr., Chas. Muehlheims and A. G. F. Streit, Ph. D.

Pharmaceutical Society of Great Britain.—At the pharmaceutical meeting held May 6th, Mr. Thos. H. Hills in the chair, Mr. Gostling read a note on adulterated opium; he found in a piece of opium weighing 28 oz. a lump of clayey earth, 2½ oz. in weight, being nearly ten per cent. of the weight of the opium. Afterwards a note, by Mr. E. Smith, on the Additions to the British Pharmacopœia, was read, and a general discussion ensued, during which Mr. Bland very properly remarked that it was much easier to criticise processes described than to suggest new ones which should be unassailable. The meeting subsequently adjourned till next fall.

The thirty-third annual general meeting was held at 17 Bloomsbury square, London, May 20th. A portrait of Mr. T. N. R. Morson was presented, and the annual reports read and discussed. A new Council, to serve for the ensuing year, was elected, and this organized on June 3d, by re-electing the old officers, viz., Thos. H. Hills, President; Alex. Bottle, Vice-President; Mr. Williams, Treasurer; Elias Bremridge, Secretary and Registrar, and Richard Bremridge, his assistant. A deputation, consisting of Messrs. Greenish and Sutton, was appointed to represent the Pharmaceutical Society of Great Britain at the International Pharmaceutical Congress, to be held at St. Petersburg in August next; the sum of £80 was set apart to defray the expenses, and

committee was appointed to confer with the delegation as to the views on the various points of discussion which they should advocate at the Congress.

The British Pharmaceutical Conference will hold its eleventh annual meeting, at the City of London, on August 6th and 7th next.

Pharmaceutical Society of Paris.—Vice-President Planchon presided at the meeting held May 6th. M. Wurtz was added to the Committee at present engaged in preparing the material for an international pharmacopœia.

M. Guichard reported the results of some experiments made by him with sulphide of carbon upon benzoin and other resinous products. The acids obtained from tolu in the preparation of syrup were treated with carbon sulphide, and obtained in large crystals, supposed to be benzoic acid.* Several resins soluble in this menstruum may be conveniently and economically purified by its use; and purified gum resins may be obtained by treating the commercial articles successively with carbon bisulphide and water; resin, gum and a saccharine matter reacting with Fehling's solution, is thereby obtained. It was then stated by several members that the acid of tolu balsam had been recognized by M. Carles† as cinnamic acid, and that a German chemist had previously arrived at the same result.

After some remarks on the probable identity of thapsia and silphion, a report on toxicological researches on phosphorus was presented by M. Lefort.

Editorial Department.

"On Patent Medicines, their Evils and the Remedy" is the title of an essay written by Dr. R. W. Murphy and read before the Sacramento Society for Medical Improvement. The paper, as published in the *Pacific Medical and Surgical Journal* for May, contains some information of general interest; a few of the most important points we desire to lay before our readers.

After referring to the various means resorted to by the manufacturers of quack nostrums to introduce their all-healing combinations, and to the dangerous properties of such preparations, like "Mrs. Winslow's Soothing Syrup," "Vinegar Bitters," and "Ayer's Cherry Pectoral," the author states that a copy of the Patent Medicine Records of the Patent Office would cost about $250. Dr. Thos. C. Smith, of Washington, however, has furnished the following information:

"The first patent granted in the United States, where the use of the medicine is indicated, was on the 3d of May, 1797, to Benjamin Duvall, of Virginia, for anti bilious pills. The next was June 17th, 1801, to Jesse Wheaton, of Massachusetts, for a jaundice bitters. On the 9th of June, 1809, a patent was granted to Wm. Stoy, of Lebanon Pennsylvania, for a medicine to cure hydrophobia. (What a pity it was a failure!) But the ingredients of these

* They were subsequently proven to be cinnamic acid.

† See American Journal of Pharmacy, 1874, p. 235.

medicines are not given, which places them among nostrums. On the 24th of November, 1820, a patent was granted to Lorenzo Dow (supposed to be the eccentric preacher Dow) for a medicine the recipe of which is now on file in the Patent Office, as follows: 1st. Take nine pounds of Epsom Salts, dissolve in eight quarts of soft, boiling water, to which add tincture of bloodroot four ounces; 2d. Take one pound of salts of nitre, dissolve in boiling water, adding eight ounces of pure sulphuric acid, making four quarts of the solution f when cool mix with No. 1, to be called Dow's Family Medicine Directions o this mixture: Take from oz. ss. to oz. i, in a half pint of cold water, every two hours until it operates. Remarks: In costive habits a corrective, and in dysentery a speedy relief.

"The recipe is given that you may compare it with the prescriptions of the present day, and to let you see what has been protected by a patent from our Government. In December, 1836, the United States Patent Office, with all its records, was destroyed by fire, which renders it difficult to give anything like a full list of patents granted for medicinal preparations. From 1848 until 1859 but few patents were issued. From 1860 to 1870, 339 were granted."

Since the trade-mark law of 1870 went into operation, most nostrums are held by virtue of a trade-mark; a few figures, which, however, probably do not apply to patent medicines only, will show the importance attached by merchants to this protection.

"Since October, 1864, over 200 trade-marks have been filed with the Secretary of State in California. In 1871–2, 89 trade-marks were filed in the District of Columbia for medicinal preparations. These trade-marks are distinctive labels, or some peculiar device to particularize the products of an individual or firm. There may be found on the revised catalogue of a single house in New York (John F. Henry), for the year 1872, 1,570 different kinds of patent medicines and nostrums." (This includes the patent nostrums.)

Upon what authority the following figures are furnished does not appear:

"There are 14,000 drug stores and 4,000 grocery stores engaged in selling patent medicines in the United States. The number of persons employed in the manufacture and sale of these medicines is 135,000. Over ten million dollars is paid annually for advertising alone, all of which must be paid by the unfortunate consumers. And the amount sold annually in the United States is about eighty million dollars worth, being two dollars for each man, woman and child in our country."

That about two-thirds of the sales of some of the leading (wholesale) druggists are patent medicines is probably correct; but there are others who deal but little in these preparations; and this is also the case with a number of pharmacists, some even not selling any patent medicines.

After pointing out the necessity of protection of the public against the evils resulting from this traffic as at present carried on, the author urges that it is the duty of the medical profession to act in the premises, and, while well weighing the difficulties, he suggests the following plan:

"Our hope of success lies in a concert of action by the medical profession throughout the United States, to secure the enactment of a law requiring the *formula* or *recipe*, printed in plain English, to accompany each and every package of medicine offered for sale in the United States, whether held by virtue of a trade-mark or a patent. Any person or persons who either manufacture or sell such medicines, or cause the same to be done, who fail to comply with the law, or who shall knowingly or wilfully print or cause to be printed a

false formula or recipe to accompany such medicine, with a view of deceiving the public, shall be deemed guilty of a misdemeanor, and liable to be punished by fine and imprisonment, and to have all the medicines confiscated.

"To accomplish the proposed legislation, the National Medical Association should secure the co-operation of all the State Societies in getting petitions to Congress on the subject, which petitions should not only contain the names of all the physicians in the United States, but also the names of all the State officers in each State. The petitions should all be sent up at the same time, and be presented by a committee appointed by the National Medical Association.

"The object of the law is not to wipe from existence everything in the shape of patent medicines, but to correct the evil, if possible, and protect the innocent and unsuspecting from being imposed upon."

It will be observed that this plan is essentially the same as the one proposed on page 90 of our February number, to which we would refer the reader for some further observations.

The Enforcement of Pharmaceutical Laws, it appears to us, is not always as strict as it might be. It is possible that in Philadelphia nearly all legally required to do so may have been registered, but there appear to be, in some localities, such flagrant violations of the law that pharmacists should consider it their duty to furnish sufficient evidence to the Pharmaceutical Board to warrant them in proceeding against the violators. The following letter, received from Mr. W. R. Jones, explains itself:

"The so-called law, termed 'An Act to Regulate the Practice of Pharmacy,' is apparently a dead letter so far as any enforcement of the law is concerned, while *all law-abiding* members of the craft have appeared for examination, or to pay for and take out the required certificate, others have neglected and refused to do so; not the least in number and importance are the grocers, who sell with impunity, and with a full notification, from the board, of the requirements of the law, daily violate the law, with no one to punish or prevent. In justice to those paying the fee, they should either be protected by the enforcement of the law, or the fee refunded. I, for one, will contribute towards a fund to bring a case to trial."

Pills of Sulphate of Quinia.—In relation to the note on this subject, published on page, 112 of our March number, Mr. A. Schreiber, of Tell City, Ind., informs us that a smaller quinia pill can be made by using a mixture of equal parts of glycerin and muriatic acid, than with the glycerin alone; Mr. S. has used such a mixture for this purpose for several years.

The Stamp Tax.—We have heretofore endeavored to keep our readers informed upon the action taken by various bodies with the view of securing the repeal or modification of section 13 of the Internal Revenue Law, which had become burdensome and vexatious in consequence of a decision, dated September 9, 1873, by Commissioner Douglas. For various reasons, a repeal of the section could not be obtained, and the efforts of the Committees were then directed towards obtaining such a modification or explanation of its phraseology

and meaning as to do away with the possibility of conflicting and vexatious decisions by revenue officers. A section clearly defining which medicines are *not* stampable, was attached to bill No. 3,571 of the House of Representatives, by which body it was passed June 2d. The Senate failing to agree with all the provisions of this bill, a Conference Committee was appointed by both Houses of Congress. The report of this Committee has been postponed until next December.

The section in question reads as follows:

"Section 22. That hereafter nothing contained in the Internal Revenue Laws shall be construed so as to authorize the imposition of any stamp tax upon any medicinal articles prepared by any manufacturing chemist, pharmaceutist, or druggist, in accordance with a formula published in any standard dispensatory or pharmacopœia in common use by physicians and apothecaries, or in any pharmaceutical journal issued by any incorporated college of pharmacy, when such formula and where found shall be distinctly referred to in the printed label attached to such article, and no proprietary interest therein is claimed. Neither shall any stamp be required when the formula of any medical preparation shall be printed on the label attached to such article, where no proprietorship in such preparation shall be claimed."

A circular of the Philadelphia Drug Exchange, after giving the information of the postponement of the report, continues as follows:

"Nevertheless, as this section was one which met the full approval of both the Senate and House of Representatives, there is no doubt of its final passage; and it is reasonable to suppose that the Commissioner of Internal Revenue—in view of the sentiment of these bodies—will continue to withhold the enforcement of his ruling, of October last, until the final disposition of the question by Congress."

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Materia Medica for the Use of Students. By John B. Biddle, M.D., Professor of Materia Medica and General Therapeutics in the Jefferson Medical College, &c. Sixth edition, revised and enlarged, with illustrations. Philadelphia: Lindsay & Blakiston, 1874. 8vo, pp. 435. Price, $4.

That this work is a valuable aid to the medical student is proven by the rapid exhaustion of the previous editions; the present one follows the new Pharmacopœia of the U. S. in nomenclature, and the so-called new chemical notation has been introduced throughout. As far as we have examined the formulas, they are given correctly; this is also the case for propylamia (spelled by the author prop*h*ylamia), which, however, is not the alkaloid of herring pickle, this being trimethylamia, of the same *elementary* composition as the former. The therapeutical portion of the work has in many cases been re-written, and appears to contain all the most notable facts having become known up to the time of publication. This is also the case with the other portions, the most important omission noticed by us being Scheffer's process for pepsin, and the

similar one for pancreatin proposed by Mattison. An erroneous statement is made on page 298, where it is said that "benzoin is volatile."

The descriptions of the drugs are of the same character as found in nearly all works on materia medica written for the exclusive use of the physician or medical student: they are insufficient for the diagnosis of the crude drugs, which, however, is not an essential branch of knowledge of the medical practitioner.

Compared with former editions, the one before us has been greatly improved, and will be found of at least equal usefulness to the American medical student as the former ones. The publishers have made the book quite attractive in appearance.

A Conspectus of the Medical Sciences; comprising manuals of anatomy, physiology, chemistry, materia medica, practice of medicine, surgery and obstetrics, for the use of students. By Henry Hartshorne, M.D., Professor of Hygiene in the University of Pennsylvania. Second edition, enlarged and thoroughly revised, with 477 illustrations. Philadelphia: Henry C. Lea, 1874. 12mo, pp. 1024

The work is intended as an aid to the medical student, and as such appears to admirably fulfil its object by its excellent arrangement, the full compilation of facts, the perspicuity and terseness of language, and the clear and instructive illustrations in some parts of the work. We notice an oversight on page 529, where *Russian* rhubarb is still mentioned as one of the varieties of rhubarb, while for a number of years past the Russian government has not had any to dispose of, and for fully a decade this kind has enjoyed a mere historical interest, and is found only in cabinets, but not in the general market.

Geo. P. Rowell & Co.'s American Newspaper Directory; containing accurate lists of all the newspapers and periodicals published in the United States and Territories, and the Dominion of Canada and British Colonies of North America. New York: Geo. P. Rowell & Co, 1874. 8vo, pp. 896.

We have on former occasions called attention to the usefulness of this annual publication. The present handsome volume shows an increase of 493 periodical publications over the number exhibited in 1873, the whole number now being 7,784.

The Mutual Relations of Druggists and Physicians. By Chas. E. Buckingham, M. D., Professor of Midwifery in the Medical Department of Harvard University. Boston: 1874. 8vo, pp. 15.

This is an able address, delivered before the graduating class of the Massachusetts College of Pharmacy at the commencement held April 22, and reprinted from the "Boston Medical and Surgical Journal."

Transactions of the Fourth Annual Session of the Medical Society of Virginia, held in Norfolk, November, 1873. Richmond: Fergusson & Rady, printers, 1874. 8vo, pp. 124.

The receipt of this pamphlet is hereby acknowledged.

THE

AMERICAN JOURNAL OF PHARMACY.

AUGUST, 1874.

A PROCESS FOR THE ANALYSIS OF SOAP, BASED IN PART ON THAT OF MOFFIT.

By A. Sienier, Jr.

I. *Substances to be Sought.*

Three essential constituents are found in all soaps, viz., a base, a fatty acid and water. Besides these, there is usually more or less glycerin, sometimes added intentionally, though generally due to imperfect separation; an excess of alkali and alkaline and earthy carbonates are commonly found, and sulphates and chlorides are of frequent occurrence. By the following method the fatty acids, save resin, are estimated together. The base is estimated as soda in the case of hard soaps, and as potash in that of soft. The water is determined by subtracting the weight of all the substances found from the gross weight (it should not exceed 20 or 30 per cent).

Recapitulating, the substances to be sought are

Alkali, combined and free,	Carbonate,
Fatty acids (their fusing point to be found),	Resin.
	Salts and coloring matter,
Glycerin,	Water.

II. *Process.*

a. Average the soap fairly, and weigh out three portions—ten grams, ten grams and forty grams.

b. Digest ten grams with alcohol (five or six ounces), heat over water bath, filter, wash the residue frequently with hot alcohol (the funnel being kept hot by apparatus for hot filtration). Treat residue as (1), and filtrate as (2).

(1). *Residue.* (Carbonates, other salts, coloring matter, &c.)

Dry in oven at 212° F. (Counterpoise filter) and weigh. Digest

with hot water on filter and test solution volumetrically by a graduated normal solution of oxalic acid. Every c. c. used will indicate ·053 grams of Na_2CO_3. Incidentally notice whether any precipitate of calcic oxalate occurs. Subtract the weight of sodic carbonate from the whole weight of residue insoluble in alcohol, and the remainder is the weight of *salts and foreign matter*. This can be further analyzed, if it is desired.

(2). *Filtrate.* (Alcoholic solution of soap and free alkali).

Pass through it a stream of carbonic acid gas, if precipitate forms continue, until precipitation ceases; filter; dissolve precipitate in water, and estimate with normal graduated solution of oxalic acid, as before. Every c. c. indicates ·031 grams of *free soda*, or ·047 of *free potash*, as the case may be. No precipitate indicates absence of free alkali.

The filtrate from the precipitate by carbonic acid, or, if no precipitate has occurred, then the alcoholic solution, after the addition of about one ounce of water, is evaporated on a water-bath until all the alcohol has escaped (a retort may be used, if it is desirable. to save the alcohol). To the aqueous solution is then added normal graduated solution of oxalic acid, until it is acid to litmus paper. Each c. c. required indicates ·031 grams *combined soda*, or ·047 grams of *combined potash.*

A little sulphuric acid is now added, to separate the fatty acids more rapidly. Ten grams of beeswax—previously melted to free it from water—is added, and the whole placed on a water-bath until the fatty acids have mixed, forming a stratum on the top of the liquid. The mixture is then set aside to cool, and the cake, or solidified stratum, removed, dried and weighed. Subtract weight of beeswax, and the remainder is the weight of *fatty acids and resin.*

c. (1.) Take forty grams, dissolve in water, add dilute H_2SO_4 until precipitation ceases, and set aside in a cool place (below 57° F). The fatty acids will rise to the top, when they may be dried and weighed.

(2.) Digest, with constant mixing, the fatty acids with a mixture of water, with nearly as much alcohol, until the subsident liquid (when the mixture has cooled and the fatty acids again solidified) ceases to be milky. Weigh fatty stratum again, and subtract from weight ob-

tained above, and the result is, approximately, the weight of resin in forty grams. Divide by four, and the quotient is the weight of *resin* (approximate).

(3). Find *fusing point of fatty acids.*

d. Take ten grams, dissolve in alcohol, add alcoholic solution of sulphuric acid until precipitation ceases, and filter. Add baric carbonate and filter again. Evaporate until the alcohol is all expelled, and weigh sweet residue as *glycerin.*

e. Add together the amount found of carbonate, salts and foreign matter, alkali (free), alkali (combined), fatty acids, resin, glycerin, and the difference between that sum and ten grams is the weight of water.

University of Michigan, June, 1874.

RHUS VENENATA, OR POISON SUMACH—DESCRIPTION AND PARTIAL ANALYSIS.

By Robert M. Cotton.

This is a low, smooth, branching shrub, growing from six to eighteen feet high, and always inhabiting swamps, especially tamarack swamps. Its leaves are compound, dotless, alternate, odd pinnate and stipulate, with from seven to thirteen obovate-oblong, entire leaflets. It is most widely known under the common name of poison sumach, though, in some localities, it is known as poison elder.

It is not necessary to give the details of *the analysis*, as Rochleder's process for the analysis of plants was quite closely followed. It is sufficient to say that an acid was obtained from the decoction, which remained after subjecting a quantity of the powdered leaves to distillation for several days. This acid crystallizes in congregated clusters of minute, transparent, triangular prisms; non-volatile and decomposed by a high temperature. The water solution of these crystals has a moderately sour taste, and reddens blue litmus quite distinctly. With neutral acetate of lead, it gives a white, flocculent precipitate; with chloride of barium, a white, granular precipitate, which is increased in amount by heat; with calcic hydrate a white precipitate is produced after standing a short time. A large number of other reagents were added, such as nitrate of silver, phosphate of magnesium, chloride of mercury, etc., without producing any precipitates.

It was at first supposed that this acid was the same which Gmelin speaks of in his Hand-Book (this being the only work where anything was found in any way touching upon this plant or genus) under the name of rhus-tannic acid, and said to be a constituent of the plants of this genus. But it is found that this acid has none of the properties characteristic of the astringent acids; it has not an astringent taste: does not precipitate gelatin nor iron. Owing to the small quantity of the leaves originally taken, and the small amount of time that could be devoted to the work, the examination could not be further continued.

If so desired, this acid can be obtained in any quantity by boiling the dry powdered leaves with water for some time, straining, expressing and filtering while hot; then boiling with and filtering through animal charcoal, precipitating with neutral acetate of lead, decomposing the precipitate with sulphuretted hydrogen gas, filtering out the sulphide of lead, then evaporating and crystallizing. The crystals can be purified by re-crystallization from water solution, if so desired. It is found by experiment that, in passing the decoction through animal charcoal, the charcoal retains all of the coloring matter with nearly all of the gum, but not taking up any recognizable quantity of the acid.

Other crystals were obtained from portion third of the decoction, after having filtered out the precipitate caused by alum and ammonia, by evaporating the filtrate and allowing it to crystallize. These crystals are deposited needle-shaped, and as long triangular prisms. In shape, they resemble the first-mentioned crystals of this acid, but are very much larger. They have a sharp, salty taste, and are neutral in reaction; are soluble in water, hydrochloric, nitric, sulphuric and acetic acids; very soluble in ether, insoluble in alcohol, unless added in very large quantities. The crystals suffer decomposition instead of sublimation, and when completely burned leave a small white ash. The possibility of this being a compound formed from any of the reagents added, or by their decomposition, was satisfactorily precluded by special examination for that purpose. It is supposed that this is an alkaline earth in combination with an organic acid, probably the same acid which was previously obtained separate, though the reactions of these two sets of crystals differ in a few instances.

University of Michigan, July 3, 1874.

HELIANTHEMUM CORYMBOSUM, MICHAUX.

By Frederick J. Kruell, G. P.

Condensed from an Inaugural Essay.

This plant is said to possess the same medicinal properties as the officinal *Helianthemum canadense.* For the following analysis the herb was collected in the latter part of June, in New Jersey, and after carefully drying it in the shade, it was found to have lost 52·5 per cent.

An infusion, made with boiling water, was of a reddish brown color, and a slightly bitter but very astringent taste, and possessed a grass-like odor.

The infusion was free from starch; alcohol produced a precipitate, consisting mainly of gum, and iron salts indicated the presence of much tannin. The latter was removed by gelatin and the filtrate treated with subacetate of lead. The filtrate from this precipitate, after the removal of the excess of lead by sulphuretted hydrogen, contained but a minute quantity of coloring matter, which was found to be insoluble in alcohol and ether.

Three tinctures were next prepared with ether, alcohol and with diluted alcohol. Evaporated to the consistency of a solid extract, the diluted alcohol tincture yielded 28 per cent.; the alcoholic, 16·4 per cent., and the etherial 4·6 per cent. of the original weight of the herb employed; the portions of the herb extracted with alcohol and ether were dried, and exhausted with cold water, which, upon evaporation, yielded extracts weighing respectively 19·6 and 22 per cent. of the original weight, and containing glucose as indicated by Trommer's test.

The extract obtained with diluted alcohol was of a dark-brown color, and a bitter and astringent taste; it was exhausted with diluted muriatic acid, the tannin removed, and then treated with carbonate of sodium, which darkened the color without producing a precipitate, evaporated to an extract and treated with alcohol, which dissolved a little coloring matter but no alkaloid.

The residue left by the dilute acid was digested in hot alcohol, and the solution filtered; this was of a dark-brown color and a slightly bitter taste; when added to water, it produced a milky solution, and, on further examination, was found to be resin and coloring matter

The alcoholic tincture yielded an extract which was of a dark-green

color, and a bitter and astringent taste; was but slightly soluble in water, ether and chloroform, imparting merely a light-green color to the latter solutions. It consisted of resin, chlorophyll, bitter extractive and coloring matter.

The extract obtained from the etherial tincture was of a dark-green color, and of an agreeable aromatic odor, but of exceedingly disagreeable taste, resembling somewhat that of coal oil. This extract was insoluble in water, but readily soluble in alcohol and bisulphide carbon, and sparingly so in chloroform. It consisted mainly of chlorophyll, waxy matter and an acrid resin.

A portion of the herb was distilled with water, but no indications of a volatile oil were obtained.

From the foregoing experiments I would infer that the medicinal properties of frostwort are due to tannin and extractive matter.

The constituents of frostwort may be briefly summed up as follows: *Tannin*, of which it contains a large percentage, resin, glucose, gum, extractive matter, chlorophyll and inorganic salts.

EMULSIONIZING HOFFMANN'S ANODYNE.

Editor American Journal of Pharmacy:

A few days ago, I received the following prescription:

Hoffmann's anodyne,	℥ii,
Acaciæ pulv.,	
Sacchar. alb.,	*aa* ʒii,
Aquæ,	℥i.

Never before having had to make a similar mixture, I had my doubts about its feasibility; at any rate, I would try. The old mortar process having failed (not to mention that no inconsiderable part of the anodyne volatilizes before the mixing can be done), I tried the bottle process of Mr. Forbes (*Am. Journ. Pharm.*, 1872, p. 61). For some reason or other, I did not succeed, probably for want of dexterity. Mr. Forbes' process is first to put the liquid to be emulsionized in the bottle, then a small quantity of powdered gum, shaking well, and then water.

At last I hit upon the following:

I put in the bottle—

Mucilag. acac. (U. S. P.),	f℥ii,
Water,	f℥vi,
Hoffmann's anodyne,	f℥ii,

and agitated violently; a milky mixture, without any separation of gum, resulted. At last I added the sugar, ℥ii. Instead of the prescribed ℥ii acacia, I took only 48 grains.

You will see that I only followed the old, very old rule, for making emulsions. Make the mucilage of about "the same consistence as the liquid to be emulsionized."

By the way, I see that Mr. Forbes' plan has been suggested not only by M. Nougaret, for castor oil (*Am. Journ. Pharm.*, 1869, Vol. xli, p. 204), but that Mr. Thos. Powers speaks of this bottle process as of an old one (*Am. Journ. Pharm.*, 1833, Vol. v, page 101). But Mr. Forbes is the first who found out how very little gum is needed to make an emulsion. Hans M. Wilder.

Philadelphia, July 6th, 1874.

FLUID EXTRACT AND SYRUP OF AZEDARACH.

By John Joseph Miles, G. P.

Extract from an Inaugural Essay.

Melia Azedarach, an elegant tree, twenty-five to thirty-five feet in height, is the principal shade-tree in the avenues of many of our Southern villages and cities, where it is known under the names of Bead-tree, Pride of China, China-tree, Pride of India, &c. It is avoided by flies and other insects.* The bark of the root is officinal in the U. S. Pharmacopœia, but all parts of the tree possess medicinal properties; it acts as an anthelmintic, and in large doses, narcotic.

The fluid extract is prepared as follows: Take of the inner bark of the root sixteen troyounces; dilute alcohol, sufficient quantity. Macerate the bark in sixteen fluidounces of the dilute alcohol for twenty-four hours; then percolate until twelve fluidounces have been obtained, and set this aside. Continue the percolation with sufficient dilute alcohol to obtain twelve fluidounces of percolate; evaporate

* Dr. F. P. Porcher, in his "Resources of the Southern Fields and Forests," states that a decoction of half a bushel of berries to fifteen gallons of water sprinkled over the affected plant, will, in most cases, prevent the depredation of the black grub or cutworm; and, upon the authority of Mr. John Commins, it is asserted that the Pride of India, by being planted alternately with peach-trees, will prevent the latter from being infested by the aphis, and protect the fruit of the peach against the immense destruction by insects.—Editor Amer. Journ. Pharm.

this to two fluidounces and add to the reserved portion. Filter, add six troyounces of white sugar, and dissolve by aid of a gentle heat.

The above extract has been used with satisfaction and decided results in the dose of one-half to one teaspoonful, according to age.

A very agreeable syrup may be prepared from the extract by the following formula: Take of fluid extract four fluidounces; syrup of vanilla, eight ounces; simple syrup, sufficient to make one pint. This is used in the dose of three to four teaspoonfuls. The syrup of vanilla wholly disguises that bitter and disagreeable taste that is so objectionable in most of the anthelmintics.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

The Powdering of Chlorates is usually effected in a mortar, the salt being kept moist by alcohol. To obtain larger quantities of chlorate, in the form of powder, suitable for colored fires, A. Gawalowski proposes to dissolve the chlorate in hot water, to complete saturation, and to dip into the solution plates of glass, which, on being removed, become covered with a fine crystalline powder of the salt, which is readily collected upon paper and dried, without the least danger to the operator.—*Pharm. Cent. Halle, No.* 24, from *Journ. f. pr. Chem.*

Alkaloid in Hops.—In 1863, Lermer suggested the presence of a peculiar alkaloid in hops. Griessmayer's recent experiments seem to prove the existence of a peculiar volatile alkaloid, which he named lupulina. The concentrated aqueous decoction of ten pounds of hops was distilled with potassa or with magnesia, the distillate neutralized with muriatic acid, evaporated to dryness, treated with cold absolute alcohol, to remove sal ammoniac, the alcoholic liquid heated to boiling and cooled, when much muriate of trimethylamina crystallized. The filtrate was evaporated in a water-bath, and finally spontaneously, the residue redissolved in water, in a narrow cylinder, agitated with potassa and ether, and the ethereal solution evaporated spontaneously. The remaining alkaline liquid had a peculiar odor, reminding of conia, and a cooling, but not bitter taste. It soon separated small crystals, and finally solidified completely. The author supposes that these crystals are impurities, and that the pure alkaloid is liquid

or gaseous. The following reactions were obtained with the alkaline residue:

Chloride of platinum produces, after the addition of alcohol and ether, a green-yellow precipitate. H_2SO_4 and bichromate of potassium causes a violet coloration. Fuming HNO_3 yields at first a yellow color, which turns green, then dark-green, and finally colorless. White precipitates are obtained with tannin, silver nitrate, Fehling's solution and corrosive sublimate; with chloride of gold a yellowish-white precipitate, soluble in HCl; with iodine a brown precipitate; with bromine, sulphur-yellow, becoming orange and brown; with phospho-tungstic acid, voluminous yellowish-white. Nessler's reagent gave the reaction of ammonia; chlorine had no effect; with sulphuric, muriatic and oxalic acids, no crystalline compounds were obtained. —*Chem. Cent. Blatt.*, *No.* 21; *Polyt. Journ.*, ccxii, 67.

Pure Albumen.—Graham's statement, that by dialysis for three or four days an albumen may be obtained which, on incineration, leaves no trace of ashes, has been examined by B. Aronstein, and found to be correct. It is necessary, however, to use very fine parchment paper, made by De la Rue, of London, no German parchment paper giving satisfactory results. The author's conclusions are as follows:

1. Pure albumen is completely soluble in water; its solution in the animal liquids is not affected by either the soluble or insoluble salts.

2. Pure albumen is neither coagulated by heat, nor by alcohol; in both cases coagulation depends upon the presence of salts in its natural solutions.

3. The insoluble salts, dissolved in the animal liquids, form no compound with albumen; their solution in the blood serum, as well as in the whites of eggs, is effected by an organic body which does not belong to the albuminous compounds.

4. The two liquids mentioned contain, besides albumen, paraglobulin, which albuminous body is insoluble in water, but here dissolved by the salts.

5. Pure serum albumen is precipitated by ether, but not pure egg albumen; in the presence of salts the action of ether is reversed.—*Zeitsch. f. Anal. Chem.*, 1874, 71; *Arch. f. Physiol.*, viii, 75.

Detection of Morphia in the Presence of Quinia.—L. W. Jassoy proposes to agitate the supposed mixture with twenty times its weight

of water, and filter. If the quinia was present as sulphate, the greater portion of it will remain undissolved, while the morphia salt will be found in the filtrate, to which a few drops of iodic acid are added, and after agitation a little chloroform; the latter will dissolve the liberated iodine, or, in case morphia is not present, will remain colorless, while the filtrate becomes fluorescent.

In the presence of the more soluble muriate of quinia, the reaction is a little different. After proceeding as stated above, a yellow coloration will at once be produced if morphia be present; but the iodine will not be dissolved in the chloroform, unless an excess of morphia be contained in the mixture. The yellow color, however, produced by the formation of a compound insoluble in chloroform, between the liberated iodine and the quinia, is sufficient to indicate the presence of morphia, or of a foreign body with a similar behavior towards iodic acid.—*Arch. d. Pharm.*, 1874, *June*, 517.

The Rapid Evaporation of Ethereal Tinctures from narrow vessels is effected by the following simple contrivance of Dr. G. Vulpius. The ethereal tincture is introduced into a beaker or cylinder, and a glass syphon is arranged in such a manner that the short leg is suspended at a distance of not over one centimeter above the surface of the ethereal liquid, while the long leg may reach nearly to the floor. Slight suction at the latter aperture will cause the heavy ether vapor to be siphoned off from above the liquid, and the evaporation of the ether and removal of its vapor continues so rapidly, that at the summer temperature the ether will run off in drops if the long leg be surrounded by a layer of moist paper. The short siphon leg should be lowered in proportion as the ethereal liquid evaporates.—*Ibid.*, *p.* 522.

Dry Syrup of Almonds.—To avoid the inconveniences resulting from the separation and rapid decomposition of almond syrup, Dr. Enders suggests a dry preparation from which the syrup may be very easily obtained. Twenty parts of sweet almonds are made into an emulsion with sufficient distilled water; the emulsion is mixed with seventy-two parts of sugar, and in a steam-bath rapidly evaporated to dryness; the residue is powdered and kept in well corked vials. To prepare one hundred parts of syrup, sixty-eight parts of this powder are dissolved in twenty-four parts of water by the aid of heat, and then five parts of orange-flower water and three parts of bitter almond water are added.—*Ibid.*, *p.* 511.

THE REACTIONS OF ACIDS WITH OIL OF PEPPERMINT, AND THEIR BEARING ON THE FORMATION OF CHLOROPHYLL.*

By M. A. Frebault.

With the object of combining the hydrocarbon of oil of peppermint with picric acid, the author heated gently together an alcoholic solution of that acid with some of the essential oil; water was added to dissolve the excess of acid, and the mixture left to stand. Twenty-four hours afterwards the oil, which had collected at the surface of the liquid, presented a magnificent green color. This formed the starting point for the author's investigation.

Action of Picric Acid upon Oil of Peppermint.—If oil of peppermint be agitated with picric acid, nothing is observed at first further than that the picric acid partially dissolves, and communicates its yellow color to the oil; but in half an hour the mixture is colored manifestly green, and in twenty-four hours this coloration acquires a great intensity. If a slight heat be applied to the mixture the green color appears more rapidly.

This green product, exposed to the air upon water during four or five days, acquires the reddish-yellow color of dead leaves. Introduced floating on water into a test-tube containing nitrogen, the color is retained for some time; but in oxygen it disappears more quickly. Treated several times with cold water, the washings remove each time some of the picric acid together with a red coloring matter, and finally the essential oil remains of a reddish-yellow color.

The green product has a strong red fluorescence, and in an alcoholic or ethereal solution, this phenomenon is still more marked. Treated with solution of caustic potash or ammonia, a picrate of the base employed is formed, and the essential oil remains of a reddish-yellow color. When the green product is distilled from caustic potash, a colorless liquid passes over into the receiver, and there remains in the retort a black mass analogous to that obtained by treating oil of peppermint with chromate of potash. The distillate no longer yields the green reaction with picric acid. Nascent hydrogen reduces the green product, and transforms it into a brown substance. If, instead of operating in the cold or with a gentle heat, the solution of picric acid in oil of peppermint is boiled for a few moments, it passes from the green state to yellow-brown, and then reddish-brown. Upon the

* Abstract of a paper in the *Répertoire de Pharmacie*, vol. ii, p. 199.

addition of ammonia it quickly forms red crystals, which are probably picramate of ammonia, and some crystals of picrate, whilst in the midst of them is disseminated an amorphous powder of a beautiful red color. This red powder is soluble in water, insoluble in benzin and oil of turpentine, and very slightly soluble in ether and alcohol.

That oil of peppermint is a reducing agent is shown by its producing the characteristic color of Prussian blue in paper saturated with a solution of ferric sulphate and ferricyanide of potassium. At the boiling temperature it partially transforms the perchloride of iron to the state of protochloride, and the perchloride of mercury is also partially reduced to calomel. Submitted to dialysis in alcoholic solution, the picric acid diffuses through from the green product, together, no doubt, with a little menthene, the solid and crystallizable portion of the essential oil. This solution has a bitter, sweetish, and slightly cool taste. Distilled in a water-bath it leaves a yellow residue, which, treated with sulphuretted hydrogen and ammonia, gives the intensely red coloration of picramate of ammonia. The alcoholic distillate has the cool taste of oil of peppermint due to the menthene.

It was thought interesting to investigate whether the reaction took place between the crystallizable portion or the hydrocarbide of the essential oil and the picric acid; whether the green reaction was also produced with oil of pennyroyal, which contains no stearopten. The phenomenon of coloration was found to be limited to the oil of peppermint, except that it occurred also with oil of chamomile; but in that case there is no combination, the green being produced by the mixture of blue and yellow, and there is no red fluorescence.

The reaction between oil of peppermint and picric acid is so clear, that the author thought that picric acid might be used in testing for the presence of that essence in a mixture of essential oils, and *vice versâ* that oil of peppermint would be a suitable test for the presence of picric acid. For this purpose he made a mixture of several essences, about two grams, to which he added two drops of oil of peppermint. This was shaken with a solution of ten centigrams of picric acid in about fifty grams of water. At the end of twenty-four hours the essential oils collected on the surface, and presented a very perceptible green tint. In a second experiment, a decoction of barley and hops was made, to which an extremely small quantity of picric acid was added. The

liquor was filtered, and a portion of it agitated with fifty centigrams of oil of peppermint in a test-tube. The green color was very evident after twenty-four hours.

The author has made no experiments with beer, but he suggests that it might be tested by evaporating the suspected beer to the consistence of honey, treating the extract with alcohol to which a few drops of nitric acid have been added, filtering the liquid, concentrating and agitating with a little oil of peppermint. Nitric acid is used for the purpose of oxidizing any acid that may have been reduced to picramic acid by the action of sugar in the beer, and to saturate the lime salts present.

Action of other Acids on Oil of Peppermint.—The question as to what this coloration is due may receive some elucidation from observation of the action of other acids upon oil of peppermint. which has not yet been carefully studied. The following are the principal effects noted by the author:—

Sulphuric Acid produced at first a rose color, then reddish-yellow, passing rapidly to reddish-brown. When ether was added it acquired a beautiful yellow color, whilst the lower portion of the mixture was colored red. When water was added and the mixture shaken the liquid separated into two layers, of which the lower acid aqueous layer was rose-colored, and the uppermost ethereal layer took a greenish-blue tint and had a strong red fluorescence.

Hydrochloric acid induced a rose color rather slowly. Upon the addition of ether this became faintly green. When water was added the underneath layer was rose-colored, but the ether retained its green color. In some experiments a blue color was produced.

Nitric acid caused first a rose coloration, then red, soon becoming greenish. Upon adding ether and water and shaking, the underneath layer was rose, and the ether rising to the top took a violet-blue grey color.

The blue and green tints were rapidly altered by the action of air and light.

These observations were made upon pure and quite colorless oil of peppermint. When the yellow or greenish-yellow tinted oils frequently met with in commerce were employed, the phenomena of coloration were much more intense with sulphuric and hydrochloric acids; whilst with nitric acid the ethereal layer acquired a magnificent green

color and a strong red fluorescence. The rose coloration first produced by the acids had a violet reflection. Moreover, when chloroform was employed in the place of ether, sometimes a violet or a grey color was obtained, the latter being the result of a mixture of yellow and violet, or perhaps red and green, or even blue and orange.

From the foregoing, the author concludes that the coloration produced by picric acid when reacting upon the oil of peppermint is not a property peculiar to itself, but common to the strong acids; that the picrate of the hydrocarbide which he sought was not produced; that it was not a case of oxidation *pur et simple* as might have been supposed with picric acid. He looks upon the coloration as a phenomenon dependent upon the separation and combination of the coloring matters contained in the oil of peppermint. He thinks that the acids split up the oil into five coloring principles, red, blue, green, yellow and violet; and that, according to the quantity and nature of the acid employed, one or other of these principles is obtained, or perhaps a grey resulting from a mixture of two complimentary colors.

Relation of the Green Coloring Matter to Chlorophyll.—The author remarks upon the striking analogy which appears to exist between the green substance obtained by the action of acids upon oil of peppermint and chlorophyll, which is set forth in the following table:—

Chlorophyll.	Green Matter obtained by the Action of Acids on Oil of Peppermint.
Strong red fluorescence.	Strong red fluorescence.
Becomes reddish-yellow in the air (dead leaves).	Exposed to air, it is changed into a reddish-yellow substance.
Treated with alkalies it becomes yellow.	Treated by alkalies, it becomes yellow.
Reduced and decolorized by nascent hydrogen.	Reduced and transformed into a brown matter by nascent hydrogen.
Yellow leaves become green by the action of acids.	After being made yellow by alkalies, again becomes green when treated with acids.
The green and blue colors obtained by the action of acids on chlorophyll are decomposed by light.	The green and blue colors obtained by the action of acids upon oil of peppermint are decomposed by light.

This comparative table presents points of great resemblance, of

which the most important doubtless is the fluorescence, the red fluorescence being characteristic and confined to these two substances. Supposing it probable that in both cases the appearance is due to chlorophyll, the author endeavors to explain its formation in the oil of peppermint. He considers that as his experiments were made with colorless oil of peppermint it is necessary to assume that the constituent elements of chlorophyll exist in that essence ; but probably they exist there in a state of reduction, and that it is only under the influence of acids that a kind of synthesis of the chromule takes place. The blue principle (Frémy's phyllocyanin) and the yellow principle (phylloxanthin) are, so to speak, in a latent and colorless state, either in consequence of reduction or their combination with the other coloring principles present in the oil. Under the influence of acids the phyllocyanin is regenerated, and at the same time the phylloxanthin, separated from the red and violet principles, unites with the blue especially to form the green color. With picric acid and nitric acid the green coloration is more intense than with the other acids, because an oxidizing action is combined with a separative action.

According to this hypothesis, which the author proposes to test by further experiment, chlorophyll, or at least its constituents, are volatilizable in the state in which it actually exists in oil of peppermint. The greenish color which is seen in the oil when imperfectly rectified wouldt hen be due probably to chlorophyll, of which the elements have not been completely altered in a first distillation.

Action of Chloral upon Oil af Peppermint.—The rose coloration which takes place when hydrate of chloral is shaken with oil of peppermint, which was pointed out by M. Carl Jehn,* has also been the subject of experiment by the author. He has come to the conclusion that the color is produced in the oil of peppermint and not in the chloral hydrate, and that it only occurs when the chloral hydrate used is acid, it being more intense in proportion as the chloral hydrate is more acid. But he has not yet been able to experiment with perfectly neutral specimens. In this case the reaction would be due to the formic acid contained in the chloral hydrate, or possibly to hydrochloric acid resulting from partial decomposition.—*Pharm. Journ. and Trans., June* 6, 1874.

* See Pharmaceutical Journal, before, p. 556 ; Amer. Jour. of Phar., 1873, p. 447 ; compare also Amer. Jour. Phar., 1874, p. 273.

SOLUBLE STARCH.*

By M. Musculus.

Chemists are not in accord as to what is to be understood by "soluble starch." Some consider as such the matter colored blue by iodine, which can be removed from starch by means of water, and which Naegeli has called "granulose." Others think that the substance colored violet by iodine, which Béchamp obtained by treating starch with sulphuric acid, to be the true soluble starch. But the author has found that granulose, although it passes readily through a filter, is not really soluble in water, for it can be separated by evaporation in a state completely insoluble even in boiling water. Also that the soluble starch of Béchamp is a mixture in which may be found granulose, soluble starch, and the products of decomposition of starch (dextrin, glucose, or glucosin), which are always formed with sulphuric acid.

The author has previously made known under the name of "*dextrine globulisée*,"† a body insoluble in cold water, which he obtained by dissolving starch in boiling acidulated water, and evaporating after saturation of the acid and filtration, to the consistence of a syrup. This deposits an abundance of granules, insoluble in cold water and soluble only at 50° C., a property that allows of their being washed and separated from the dextrin and glucose by which they are accompanied; further treatment with alcohol with remove a little granulose still adhering, and there will then be left what the author considers to be true soluble starch; the granules composing it being grains of starch deprived of their organization.

The author enumerates the following properties of this product to substantiate his assertion. When dried in the air it is white and resembles starch. Freshly washed, it is insoluble in cold water and does not reduce salts of copper; but if it be left for some time in contact with water, it dissolves perceptibly and there is at the same time a little sugar formed. Its rotatory power is nearly quadruple that of dehydrated glucose. It dissolves entirely in water at 50° C., and is not precipitated upon cooling; by evaporation, however, a residue is obtained which has recovered its insolubility in cold water. To redis-

† Abstract of a paper read before the French Academy (*Comptes Rendus*, vol. lxxviii, p. 1413).

* *Comptes Rendus*, vol. lxv, p. 857.

solve it, it is necessary to heat it to boiling, or allow it to digest for half an hour in a water-bath at 100° C. Alcohol precipitates it and also restores it to its insoluble state. The same result is obtained by congealing the solution in a freezing mixture, it being found when the ice is melted as a white precipitate at the bottom of the vessel. When this substance is mixed with dextrin and glucose, as in the mother liquor wherein these granules are formed, all these properties disappear.

These artificial starch granules give with iodine all the color reactions obtained with the natural granules as well as those given by dextrin, according to the disposition of their molecules, the result being variable at will. Thus, a dilute solution takes a pure red color; but when it is concentrated to saturation, iodine gives rise to a violet color. If iodine be added to a solution moderately diluted, so as to produce a deep red-brown color, and the solution be allowed to evaporate in the open air, it will gradually grow more and more purple; and eventually, when sufficiently concentrated, become of a magnificent pure blue color. If water be added, the violet color reappears and in its turn gives place to a pure red.

If, instead of concentrating the red liquid by evaporation, a neutral salt having an affinity for water, such as chloride of calcium, be added, the result is the same. If the blue solution be allowed to stand for twenty-four hours, it deposits a blue-black substance, which is not disdissolved by cold water. This precipitate, however, appears to dissolve in water; it does not affect its transparency, and passes readily through a filter, but after a very short time it is again deposited. This is characteristic also of the iodized granulose; from which the author concludes that in both bodies the disposition of the molecules is the same, and that they do not differ in degree of cohesion.

The iodized artificial granulose can, in fact, be destroyed, by a slight elevation of temperature; it enters into solution in the water in which it was suspended, and is then only colored red with iodine, whilst natural granulose resists a boiling temperature and continues to be colored blue with iodine. The artificial granules resemble also natural grains of starch, in not being colored by a small quantity of iodine, the blue only appearing when it is in excess; but if they be triturated in a mortar with a small quantity of iodine, a mass of a pure blue color is produced.

When starch is incompletely dissolved, either with diastase or boiling acetic acid, the fragments which resist the longest are no longer colored blue with iodine, but take a tint which varies from yellow to orange-red. The artificial granules give the same colors if their cohesion be augmented, which may be done by dissolving in water and evaporating to dryness.

Diastase decomposes soluble starch in the same manner as natural starch, but much more easily and completely. According to the observations of Payen, Schwarzer, Schulze, and the author, when diastase is caused to act upon starch, all coloration with iodine disappears when the degree of saccharification reaches one-fourth; then, by augmenting the diastase, the saccharification may be increased to one-half, a point that is not passed to any sensible extent; in fact, by his earlier experiments, the author was led to think that it was not possible to saccharify more than one-third of a given quantity of starch by means of diastase. With soluble starch, however, the stoppage of the saccharification at one-third does not occur. The reaction with iodine disappears when it reaches one-fourth; then, if more diastase be added, the production of sugar goes on rapidly until it reaches one-half, when it ceases, as with natural starch.

A widely diffused opinion, introduced into science by Naegeli, regards starch as essentially composed of cellulose mixed with a little granulose. Béchamp has found that dextrin obtained from cellulose has less rotatory power than dextrin from starch. The author prepared dextrin from cellulose by dissolving cotton in strong sulphuric acid. This dextrin was afterwards saccharified with boiling acidulated water, and it was found that during this transformation the rotatory power was not changed. Starch, treated in the same manner, yielded, on the contrary, a dextrin of which the rotatory power had been lowered more than one-half by the saccharification. It follows that the dextrin from cellulose has the same rotatory power as the sugar which is derived from it, which is not the case with that from starch. The author further remarks that all the dextrins of starch sugar have a rotatory power at least double that of the sugar itself.

It is known that glucose freshly dissolved, and especially dehydrated glucose, has a rotatory power at least double that of glucose that has been some time dissolved in a small quantity of water; but this property is not persistent. The author has prepared a dextrin from glucose, by treating that sugar with concentrated sulphuric acid

and then with 95° alcohol. This anhydride has also a rotatory power double that of the glucose, and this power is persistent.

The author has not yet obtained sugar from cellulose sufficiently pure to be able to compare it with sugar from starch; but he feels certain that there is no great difference between their rotatory powers; so that their isomerism would not be manifested so clearly as in their dextrins.

The author proposes to investigate whether other sugars which are regarded as identical with glucose—the glucoses of honey and of fruits, diabetic sugar, &c.—present the same kind of isomerism.—*Pharm. Journ.* [*Lond.*], *July* 4, 1874.

NOTE ON THE SOLUBILITY OF PLUMBIC CHLORIDE IN GLYCERIN.

By Charles H. Piesse, Public Analyst for the Strand District.

Although it has been noticed that plumbic chloride, and some other metallic chlorides, are somewhat soluble in glycerin, I have not been able to learn that any determinations of the extent of their solubilities have been made. I venture to think therefore that the following quantitative experiments upon the solubility of plumbic chloride in glycerin may be worthy of note.

The experiments were divided into two classes; firstly of the solubility of plumbic chloride in pure glycerin; and secondly of its solubility in mixtures of glycerin and water.

For the first, pure glycerin of commerce was dried in a water-oven, until it ceased to lose weight; about 100 c.c. of it was then rapidly poured into a dry bottle capable of holding about 150 c.c., and some dry $PbCl_2$ in impalpable powder added; the bottle then corked, and hermetically sealed, was agitated for a couple of days, being placed in the water-oven during the intervals, so as to maintain the temperature at about 100°C. The glycerin was then filtered in the water-oven, the funnel having been previously heated therein, the filtrate being collected in a weighed dish. When a quantity equal to about 300 grains had filtered, the dish was removed, allowed to cool in a desiccator, and then rapidly weighed, a precaution which the very hygroscopic character of glycerin renders imperative. The weighed filtrate having been washed into a beaker, some dilute sulphuric acid was added, the precipitated plumbic sulphate being collected and

weighed with the usual precautions. The following were the results of two determinations:

	Used.	$PbSO_4$ found.	Solubility of $PbCl_2$ in 100 of $C_3H_8O_3$.	Average.
I . . .	274·59	6·07	2·01	1·995
II. . .	385·85	8·18	1·97	

The solubility of the plumbic chloride appears not to be perceptibly increased by the temperature at which the experiments were performed, since after several days standing in the cold (always in a desiccator), only the slightest possible opalescence was noticeable; the advantages gained by heating being the diminished viscidity of the glycerin, and the prevention of the absorption of moisture.

For the second, weighed quantities of dry glycerin were mixed with weighed quantities of distilled water in specific proportions. The bottles containing the mixtures, with an excess of plumbic chloride, were intermittently shaken for about a week; these experiments being conducted at the ordinary temperature. The results show that the solubility of the plumbic chloride is in direct ratio to the proportions of the glycerin and water. Thus:—

Mixture A. $C_3H_8O_3$, 50 per cent. + H_2O, 50 per cent.

	Used.	$PbSO_4$ found.	Solubility per cent.	
I . . .	371·60	5·55	1·37	Theory, 1·363.
II. . .	389·48	5·35	1·26	Practice average, 1·32.

Mixture B. $C_3H_8O_3$, 25 per cent. + H_2O, 75 per cent.

	Used.	$PbSO_4$ found.	Solubility per cent.	
I . . .	307·88	3·39	1·01	Theory, 1·044.
II. . .	418·43	4·87	1·06	Practice average, 1·036.

Mixture C. $C_3H_8O_3$, 12·5 per cent. + H_2O, 87·5 per cent.

Used.	$PbSO_4$ found.	Solubility per cent.	
453·39	4·43	0·91	Theory, 0·889. Practice, 0·91.

In calculating the solubility of plumbic chloride in these mixtures, I have taken its solubility in pure water to be 0·783 per cent. By adding together, the weight of the plumbic chloride dissolved by the quantity of glycerin present in 100 parts of the mixture (as determined from the experiments with pure glycerin), and that dissolved by the water, I obtained the theoretical amount which the mixture

was capable of dissolving. These approximate so closely to practical results, that they seem to prove the accuracy of the determinations of the solubility in pure glycerin. In order to see that the whole of the lead was precipitated from these mixtures by sulphuric acid, the filtrates from them were neutralized with ammonia, and then treated with sulphuretted hydrogen, without causing more than the slightest discoloration.—*Jour. Chem. Soc.*, (*London*), *June*, 1874.

NOTE ON A REACTION OF GALLIC ACID.

By Henry R. Procter, F.C.S.

If a solution of sodic or potassic arsenate, of faintly alkaline reaction, be added to one containing gallic acid, and the mixture exposed to the air, it will rapidly absorb oxygen, and develop an intense green color. If the liquid be undisturbed, the change will commence at the surface, and a beautiful green layer will be formed, floating on the colorless liquid; while if air be altogether excluded, no apparent change takes place. 0·05 mgr. of gallic acid will produce a decided coloration in 1 c.c. of water. The arsenical solution must not be acid, but excess of alkali causes irregular oxidation and the formation of brown products.

Dilute acids change the green to a clear purplish-red, and cautious neutralization with alkalis restores the green, but any considerable excess of the latter destroys the color. In its reactions with acids and alkalis it shows a certain similarity to the coloring matter of red cabbage, but in most other reactions the two are completely dissimilar. There is also a considerable difference in their absorption-spectra, the cabbage-green transmitting a broad band of red, while the gallic-green does not.

Concentrated nitric and sulphuric, and boiling hydrochloric acids change the color to a pale yellow, which is not restored by Ammonia, but, in the case of nitric acid, is changed to a deep orange-brown.

Oxidizing agents mostly change the color to an orange-brown. Even iodine in potassic iodide does this immediately.

The color is also destroyed by reducing agents. *Sulphuretted hydrogen* passed into the acid solution rapidly decolorizes it, with no immediate precipitation of arsenic sulphide, and but slight deposition of sulphur. *Ammonic* and *sodic sulphides* instantly change the

color to brown or orange. *Sulphurous acid* and *ammonic sulphite* destroy the color in either acid or alkaline solution.

Sodic hyposulphite does not completely destroy the green, but makes it paler, and on the addition of hydrochloric acid a pale bluish green remains, which is unaltered by excess of acid, but gradually fades away.

Nascent hydrogen from zinc or sodium amalgam rapidly decolorizes the acid solution, but only acts very slowly on the alkaline one. No arsénetted hydrogen is evolved. The green matter is not taken up from its aqueous solution by ether, bisulphide of carbon, benzene, or anilin, but is partly precipitated by alcohol.

When gallic acid is present in excess, a green solution is sometimes formed, which is not reddened by acids, but only turned purplish, and which on standing deposits a bluish precipitate.

The reaction seems peculiar to gallic acid. Gallotannic acid slowly gives a faint greenish tint, probably due to traces of gallic acid, while pyrogallin not only does not give the reaction, but seems to interfere with it when gallic acid is present.—*Jour. Chem. Soc.* (*London*), *June*, 1874.

IODIDE OF BISMUTH AND POTASSIUM AS A TEST FOR ALKALOIDS.*

By M. Yvon.

The employment of the double iodide of bismuth and potassium has been indicated for the detection of alkaloids, but the value of this new reagent has not yet been sufficiently established. The author, in a note read recently before the Société d'Emulation pour les Sciences Pharmaceutiques, describes a method for its ready preparation.

The preparation of the reagent by means of iodide of bismuth, obtained according to either of the processes given in Wurtz's Dictionary, and iodide of potassium, appears to present some difficulties, the iodide of bismuth not being entirely soluble in the alkaline iodide. But it is not at all necessary to use the iodide of bismuth, and the

* Répertoire de Pharmacie, vol. ii, p. 335.

author gives the details of several alternative processes, but for various reasons adopts the following as the most convenient:

Take of—

Subnitrate of Bismuth	. . . .	1·50 grams.
Iodide of Potassium	. . . .	7·00 "
Hydrochloric Acid	. . . .	20 drops.
Water	. . . .	20 grams.

The subnitrate is suspended in water and boiled, and the alkaline iodide and the acid are then added. A limpid solution is thus obtained of very fine orange-yellow color, which may be readily used as a test for alkaloids.

If one drop of this solution be poured into water, a white precipitate is produced, resulting from the decomposition of the salt by the water. This decomposition may be avoided by the addition of a few drops of an acid, the author preferring hydrochloric acid for the purpose. It is not indifferent whether the acid be added to the reagent or to the solution to be tested for an alkaloid; four drops of hydrochloric added to 40 or 50 c.c. of the latter being sufficient to prevent the decomposition, but a much larger quantity is required if added to the iodide reagent.

If the solution be not sufficiently acid, the decomposition takes place after some minutes, instead of occurring immediately. But the more or less deep orange-yellow precipitate resulting from the presence of an alkaloid may be confounded with the pale yellow product of the decomposition of the iodide by water.

Prepared in the above manner, this reagent deposits after some time a blackish powder which is easily recognized as iodide of bismuth, and may be removed by filtration.

The alkaloid precipitate does not appear to present a constant composition, it seeming to vary according to the proportion of acid present in the solution. Thus, for example, in precipitating quinia from a solution of its sulphate, if only sufficient acid be added to prevent the decomposition, a beautiful orange-red precipitate is obtained; but if there be an excess of acid, the precipitate is paler and diminished in volume.

Since, therefore, the nature of the precipitate varies, and the composition of the reagent itself also changes, M. Yvon considers it would be impossible to use the double iodide of bismuth and potas-

sium as a volumetric test; but it would be useful for the detection of alkaloids where the precautions indicated are taken.—*Pharm. Jour.* [*London*], *June* 20, 1874.

FISH OILS USED AS MEDICINE.

The *Chemist and Druggist* contains a paper, by Mr. P. L. Simmonds, on the fish oils of commerce, from which the following extract relating to those oils which are used in medicine is made:

"In Russia among the accessory products obtained from various species of fish, oil is one of the principal, amounting in value to about half a million of roubles. This oil has three different uses—for medicine, for food, and for industrial purposes. Its source or origin is also threefold, according to the part of the fish in which it is chiefly concentrated. In some species, as, for example, in the cod, it is obtained exclusively from the liver; in others, as in the 'sandre,' the fat surrounds the intestines, the rest of the body in these fish never being fat; but in the larger number of species, as the herring, the salmon, and the siluroids, it penetrates all the frame. According to these differences in the distribution of the fat in the body of the fish, as well as the use to which the oil is to be applied, the mode of extraction varies. The cod-liver oil for medicinal use is extracted from the livers cut into pieces while they are still fresh, and submitted to the action of heat in a steam bath. This method has only been introduced of late years on the coast of Lapland, on the initiation of the Minister of Works of Russia, who offered rewards to those who followed the better method pursued in Norway, to which publicity was given. The invitation was readily responded to, and from one fisherman alone the Government buys 15,000 lbs. to 20,000 lbs. of cod-liver oil for use in the hospital. The fish oil which is intended for food is obtained principally from the fat which surrounds the intestines of different species of sturgeon and the 'sandre;' these are heaped together, washed and melted by heat. This oil is added to caviare, which of itself is not considered sufficiently rich in fat, and is also used at the seat of production, in place of vegetable oil, by the workmen on fast days.

"Very good medicinal cod-liver oil is now made at St. Pierre, Newfoundland, by the French, and it forms a considerable article of commerce, its production having been encouraged by the French

Academy of Medicine, who state the brown, pale, and bleached oils made there will compete favorably with the products of the Norwegian and English factories. That made in April, May, and June is the best; the livers being then leaner; later, when they are fat, the oil is not considered so good in a therapeutic point of view.

"I have noticed the following mode suggested of making cod-liver oil palatable: Take equal parts of ground coffee and bone-black, as used by sugar refiners, mix them in ten times their combined weight of cod liver oil, and digest for half an hour at a temperature of about 130° Fahr.; then place the mass on a filter and drain the oil off, and you will have its nauseous taste changed into a pleasant coffee flavor. If the notion is correct that coffee is an antidote of iodine, and as the latter is one of the active ingredients of cod-liver oil, it may be well to let the patient use some iodine preparation at the same time. or to add a little iodine syrup to the deodorized cod-liver oil.

"In Norway, the cod fish at the early part of the season are rich in liver, so that from 250 to 300 of the net-caught fish yield a barrel of liver, while 50 to 100 more fish taken on lines would be required. As the season advances, the fish may become perceptibly poorer, from 400 to 450 being required to fill a barrel, while on the sea-board or western side of the Lofoden Islands from 600 to 700 livers are requisite. On the whole, therefore, it may be assumed that an average number of 450 livers are required to the barrel.

"The total produce of cod-liver oil from the Norwegian fisheries in 1869 was estimated at 19,000 barrels—200 barrels were prepared as medicinal cod-liver oil. Fresh livers for medicinal oil fetched from 27s. to 31s. per barrel, old livers from 22s. to 26s. The catch of each boat varies from eight to twenty barrels of liver.

From the coast of Norway the average export of fish oil from 1851 to 1855 was 52,900 tuns, and from 1856 to 1860, 59,617 tuns per annum.

"The produce of the French cod-fishery imported in 1860—which was a fair average of the five years previous—was as follows: Cod oil, 2,050,846 kilograms; cod oil not purified, 284,649 kilograms. From St. Pierre and Miquelon about 500,000 kilograms of cod oil are shipped annually.

"In the United States a large quantity of fish oil is made from the menhaden (*Alosa menhaden*). Long Island, Connecticut and Rhode Island produced in 1870 about 1,400,000 gallons, and the business in

the State of Maine is also large. Six factories in Long Island use up every week about 2,000,000 fish. The manufactories are nearly all worked on different plans. Some use large tanks, in which the fish are placed, and into which steam is forced. A portion of the oil is extracted, and coming on the surface of the water, is skimmed off; the water is then drained away, and the refuse is pressed by hydraulic presses or powerful levers. In another mode of working used by one manufactory, the fish are placed in a large iron cylinder, similar to a boiler, and steam is let in at a given pressure, while the cylinder is made to rotate by a steam engine. The fish are steamed from twelve to fifteen minutes, then turned out, and subjected to hydraulic pressure, which, of course, extracts oil and water together. This runs through pipes into tanks, where the oil rises to the surface, and is taken off. A thousand fish yield on average about thirteen or fourteen gallons of oil, though this depends largely on the season, and the good or bad condition of the fish. The uses to which this oil is put are very numerous. It is good for table purposes, and, when properly prepared, the best kind is extensively used under the name of 'olive' oil. It is a good paint oil: (?) much of the linseed oil sold in America has a large amount of menhaden oil mixed with it. It cannot, however, be used for lubrication, owing to the rapidity with which it absorbs oxygen and 'gums.'

"From the ool-a-chan, or houlican, a small transparent fish like a smelt, the Indians of Vancouver obtain an excellent oil, which is used for the same purposes as cod-liver oil, and with as much, if not greater, benefit. The oil when cold is of the consistence of thick cream, white in color, but with little odor, and by no means unpleasant to the taste; in fact, those who use it, very quickly acquire a partiality for it. The Indians make large quantities every season, and with them it supplies the place of butter. They cannot live without it, and it forms a great article of trade. They prefer it rancid. It is a notorious fact that the Indians are subject to spitting of blood and consumption, but still live to a great age. How much has the ool-a-chan oil to do with the prolongation of their days?

"The houlican is somewhat larger than the sprat, and is so full of oil that it is said that those caught in the north will burn like a candle. The oil is obtained by merely immersing the fish in a small quantity of water and applying heat. The oil is then skimmed off,

and when properly filtered is a very pellucid oil of a delicate pale-yellow color.

"Among the fish oils, and other oils, locally obtained or met with in the East, are, at

"Madras. Karahmanoo oil, from *Polynemus plebeius* and *P. uronemus*; skate oil, serinei oil (*shark-liver*).

"Bohet fish liver oil, oil from the loggerhead turtle (*Caouna dioacea*, Esch.).

"Patna. Porpoise oil.

"Calcutta. Fish maw oil; Joree and Seephoo oil.

"In the Archipelago. Muria ekam fish oil.

"On the Western and Malabar coasts an oil is prepared which is supplied to the hospitals for the use of the troops: this, in many cases, is obtained from the liver of the skate or ray, saw fish, cat fish, seer and white shark indiscriminately. From analysis and experiments, it has been found to equal in its medicinal properties the best cod-liver oil, but from its disagreeable taste and odor it could never supersede that oil. At Kurrachee, large quantities of fish liver are prepared, but it is not so well made as at Malabar and Calicut.—*Canadian Pharm. Journ., July*, 1874.

NOTES ON THE MEDICINAL PLANTS OF THE SCROPHULARIACEÆ.

By John R. Jackson, A. L. S.

This order, which is for the most part composed of herbaceous plants, is usually considered as comparatively unimportant in an economical point of view. With us this is to some extent true, the foxglove (*Digitalis purpurea*) being the only officinal plant of the group; but in other countries many species are esteemed as valuable medicines. The family is very widely distributed; its members are most abundant in temperate regions, but some are nevertheless found in other climates. Though many of the plants are acrid and bitter, their medicinal properties vary very much, as will be seen in the following consideration of the different species. Thus, in the foxglove, which is so well known that we need not describe the plant, the effects are remarkable for their varied operation, altering the frequency of the pulse, or enfeebling the action of the heart in various degrees in different persons.

In North America many of the *Scrophulariæ* are used in medicine. *Scrophularia nodosa*, L., the figwort, a plant growing some two or three feet high, and found in woods and thickets over a good part of Europe, was at one time officinal in the Dublin Pharmacopœia, the leaves being used in the preparation of an ointment.

In some parts of Europe, as well as in America, they are occasionally used, as well as the roots, for making poultices for ulcers, tumors, burns and cutaneous eruptions. The leaves have a rank, disagreeable smell and an acrid, bitter case, and the root has also a nauseous odor. The leaves of this plant were, at one time, supposed to have tonic, diaphoretic and anthelmintic properties, and were advocated for the cure of scrofula. Farmers occasionally use a decoction of the leaves for curing scab in pigs.

The great mullein, *Verbascum Thapsus*, L., a well-known British plant, in gravelly, sandy, or chalky soils, is common also in neglected fields and along roadsides in the United States. The thick, woolly leaves have a mucilaginous, bitter taste, which is extracted by infusion in water. They are demulcent and emollient, and were at one time much valued, not only in domestic practice, but by practitioners in catarrh and diarrhœa. Sir James Smith testifies to their value in the following words: "A pint of cow's milk, with a handful of the leaves of this mullein boiled in it to half-a-pint, sweetened, strained, and taken at bed-time, is a pleasant emollient and nutritious medicine for allaying a cough or removing the pain and irritation of the piles." The leaves, steeped in hot water, are not unfrequently used by country people as poultices in hæmorrhoidal complaints. In Sweden and Norway a decoction of the leaves is given to cattle suffering from cough or pulmonary diseases. The flowers, it is said, when dried in the sun, give off a fatty substance, which is used in Alsace as a cataplasm. Porcher, in his 'Resources of the Southern Fields and Forests,' thinks that sufficient attention has not been paid to this plant as a medicine, and strongly recommends the desirability of making a careful analysis. In an enumeration of the uses to which the plant is put in North America, he states that the leaves steeped in hot water are applied externally as a feebly anodyne emollient dressing for sores, for the relief of headache and frontal pains, and are much used by the poorer classes. The leaves of this plant and the bark of the root of sassafras, in equal parts, boiled in water and concentrated, then mixed with powdered sassafras bark to form pills, are

said to be valuable in the treatment of ague; and finally he refers to a report of 'several cases in which the paroxysms of intermittent fever were completely prevented by the administration of the warm infusion of the fresh root. Four ounces of the fresh root to one pint of water, reduced one-half by boiling, of which two ounces were given every hour, commencing four hours previous to the expected chill.'"

Other species of *Verbascum* have been said to possess similar properties to the species just mentioned.

In the genus *Veronica*, which is well known in this country as including some of the prettiest of our native flowers, we find several species have been used at various times in medicine. The well-known and beautiful little plant, the germander speedwell (*Veronica chamædrys*, L.), was at one time valuable amongst the old herb-doctors as a vulnerary, and Gerarde recommends the root as a specific in pestilent fevers.

The leaves of the common speedwell (*V. officinalis*, L.) are astringent and bitter, and were, even up to a comparatively recent date, not only used as medicine in this country, but also as a substitute for tea. The plant grows in South Carolina, and, though not at present included in the United States Dispensatory as an officinal medicine, it is nevertheless, after careful examination, reported to contain "in the fresh juice and an extract from the herb, a bitter principle, soluble in alcohol, but scarcely so in ether; an acrid principle, red coloring matter, a variety of tannic acid, a crystallizable fatty acid, with malic, tartaric, citric, acetic and lactic acids; a soft, dark, green, bitter resin and mannite." The Brooklime (*V. Beccabunga*, L.), also a British species and found in moist places, was formerly valued as an antiscorbutic, the leaves and young tender stems being the parts used. In some parts the leaves are occasionally applied as a styptic to wounds, and when bruised are also applied to burns. Like the former, this species has been used in North American practice for purifying the blood.

Within the last few years, some attention has been given in America to the Virginian veronica or culversroot (*Veronica Virginica*, L.) It is a perennial plant, common in the United States in mountain valleys, and grows to a height of three or four feet. The root is the part used; it is bitter and nauseous, and imparts its active properties to boiling water. The fresh root is an active cathartic and emetic. A large teaspoonful of the root in a gill of boiling water, repeated

every three hours, is said to be an efficient purgative, operating with mildness and certainty, and peculiarly adapted to typhoid and bilious fevers.

The *Gratia Dei*, so called in olden times on account of its active medicinal properties, and known also as the hedge hyssop by the herbalists, is the *Gratiola officinalis*, L. It is a perennial herb, common in moist places in the South of Europe, where it is used in dropsy, jaundice, scrofula, chronic hepatic affections, etc. In large doses, it is poisonous. "According to Vauquelin, the purgative property depends upon a peculiar substance analogous to resin, but differing from it in being soluble in hot water. Dr. Whiting has announced the existence of veratria in it, which accounts for its active properties." Though not used in medicine in this country, it is said to have formed the chief ingredient in a once famous nostrum for gout, known as "eau médicinale." In some of the meadows of Switzerland the plant is said to be so abundant that it is dangerous to allow cattle to graze in them.

In a recent American list of "Pure Medicinal Preparations prepared *in vacuo*" at New Lebanon, occurs a preparation from *Chelone glabra*, L. The plant is known as the snake-head, or balmony, and grows in damp soils. Its action is described as follows in the catalogue above referred to: Tonic, cathartic and anthelmintic, valuable in jaundice and hepatic diseases, likewise for the removal of worms. Used as a tonic in small doses in dyspepsia, debility of the digestive organs, and during convalescence from febrile and inflammatory diseases. Fluid extract; dose, 1 drachm. Chelonin: dose, 1 to 2 grains. Amongst the medicinal plants prepared by the society known as Shakers, the foliage and twigs of *Chelone glabra* are included.

In Kumaon and other parts of India, the roots of *Picrorrhiza kurroa*, Royle, are used in medicine as a tonic and antiperiodic, and are sold in the bazaars, where they occur in short, brittle pieces, of a dark color, somewhat irregular, about the thickness of a goose-quill, but tapering towards the extremities, and covered at this part with numerous small rootlets. They have a dark-brown fracture when broken across, and an intensely bitter taste. This medicine is placed in the Indian Pharmacopœia amongst non-officinal articles, with the remark that "it would be desirable to have more information with regard to this root and its properties." Other Indian *Scrophulariaceæ* included in the Pharmacopœia, but not officinal, are, *Herpestis Monniera*,

H. B. K., and *Celsia Coromandeliana*, Vahl. The first of these is regarded by the Hindoos as a powerful diuretic and aperient; the juice of the leaves, in conjunction with petroleum, is used as a local application in rheumatism, and the juice of the leaves of the *Celsia* is said to have been given with advantage in cases of acute and chronic dysentery.

Small quantities of the flowers of *Lyperia crocea*, Eckl., have occasionally been brought into this country from the Cape of Good Hope as a dye, but have hitherto failed to attract buyers. As imported, the flowers have somewhat the appearance and smell of saffron. Dr. Pappe in his "Floræ Capensis Medicæ Prodromus," says: "This bush deserves notice as a drug, and in all probability will, ere long, become an article of colonial export. It grows abundantly in some parts of the Eastern districts, whence it has found its way into the dispensary. The flowers, which are called *Geele bloemetjes*, closely resemble saffron in smell and taste; they possess similar medical properties, and as an antispasmodic, anodyne and stimulant, ought to rank with the *Crocus sativus*. Here they have as yet been only used with success in the convulsions of children, but they deserve a more general trial. On account of the fine orange color which they impart, they are in daily request among the Mohamedans, who use them for the purpose of dyeing their handkerchiefs. This drug has been observed to be sometimes adulterated by the admixture of other plants of the same genus, which are less efficacious."

Amongst plants of lesser utility belonging to the same order, it will suffice to mention the eyebright, *Euphrasia officinalis*, a decoction or infusion of which is still occasionally used in some parts as a wash for disorders of the eye. It is astringent and slightly bitter. The yellow toad flax, *Linaria vulgaris*, is said to be purgative, and was at one time used by the herb doctors for the cure of dropsy. *L. Cymbalaria*, some species of *Antirrhinum*, *Pedicularis palustris*, and *P. sylvatica*, have all been used by herbalists, but they are not of sufficient importance to call for further remark.—*Pharm. Journ.* [*Lond.*], *June* 27, 1874.

THE CAMPHOR TRADE.

The camphor of commerce is obtained from the camphor laurel, *Camphora officinarum*, which grows in China, principally near Chinchew, in the provine of Fokien, in the Island of Formosa, and in Japan.

There is another description, which is highly prized by the Chinese for its supposed medicinal qualities, that is found in a solid state in the trees growing upon the islands of Borneo and Sumatra, and throughout the Malayan Archipelago. The Arabs were acquainted with the properties of this article, which they called kaphoor, but it does not apper to have entered into the traffic of the Romans or the Greeks. Both kinds appear to have been used by the Hindoos before the arrival of the Europeans in India, and the prices of the different sorts, reduced to present Indian weights and moneys, will be as they existed in Malabar and Calicut at the beginning of the sixteenth century. There are many plants, such as the cinnamon tree, which supply a kind of camphor; another source is the *Blumea grandis*, one of the most abundant weeds throughout the Tenessarim provinces. It grows six or eight feet high, with leaves which, when bruised, emit a strong odor of camphor. There is also an imitation in Japan, but it can be easily distinguished from the genuine. The camphor tree has been successfully cultivated in Europe, and there is mention of one at Malmaison over twenty feet high by six inches in diameter. In Spain camphor has been manufactured from several *Labiatæ*, and has been prepared artificially by passing a current of muriatic acid gas through turpentine; this variety has not, however, been used in medicine.

The camphor of commerce is derived from a shrub which much resembles the ordinary laurel in appearance, and several specimens may be seen growing at the royal gardens of Kew. It is an evergreen, and grows to a considerable size, and emits a camphoraceous odor when bruised. The leaves are shining and of a bright green. The wood which is white and fragrant, is much prized by the Chinese for carpentry work, since the scent keeps off the operations of white ants and other insects. There are several methods adopted in different countries for obtaining the crude camphor, viz., the original condition in which it is brought to Europe. These consist chiefly in separating the root, trunk and branches, which, being cut into chips, are introduced into a still with water, and heat applied, when the steam generated carries off the camphor in vapor. These vapors rise, and, passing through rice straw, with which the head of the still is filled, the camphor solidifies and is deposited round the straw in minute grains or particles, somewhat about the size of coarse sugar or sand, which by aggregation form grayish crumbling cakes, with all the properties of purified

camphor. These cakes of impure camphor are refined by being introduced into a large globular glass vessel in quantities of about 10 lbs., are reheated, when first the water rises in steam and is allowed to escape at a small aperture; and then, after this aperture is closed, the camphor sublimes and resolidifies in the interior upper part of the flask as a semi-transparent cake, leaving all impurities behind. The flasks are then cooled and broken by throwing cold water upon them, and the camphor is taken out and sent to market. The glass globes employed are called by the Italian name *bomboles*, the sublimation of camphor having been first practiced at Venice, where it was held as a monopoly, but it is now done in all the large cities of Europe. The process, which is completed in about forty-eight hours, requires considerable attention and experience. There are two kinds of unrefined or crude camphor known in commerce:—1. Dutch or Japan camphor, also called tub camphor, from the circumstance of its being brought from Batavia in tubs covered by matting, each surrounded by a second tub, secured on the outside by hoops of twisted cane. Each tub contains from 1 cwt. to 1¼ cwt. or more. It consists of pinkish grains, which by their mutual adhesion form lumps. It is of larger grain, clearer, and sublimes at a lower temperature than the second variety, which is known in commerce as, 2, ordinary crude camphor, China camphor, and Formosa camphor. This is imported from Singapore, Bombay, &c., in square chests lined with lead foil, and containing 1¼ to 1½ cwt. It is chiefly produced in the Island of Formosa, and is conveyed in junks to the Chinese ports of Shanghai and Canton, whence the foreign markets are supplied.

Of the first description, in 1870—the last year for which returns are obtainable, owing to alterations in the accounts of the British Custom House—there were imported from China 7,890 cwts.; from Japan, 2,576 cwts.; from the Straits Settlements, 1,023 cwts.; from Bombay, 311 cwts.; and from Germany, Holland and France together 568 cwts.; in all, 12,368 cwts., valued at £45,294, making an average of £3 13*s.* 3*d.* per cwt. Of the second, or better kind, the imports were:—From China, 2,171 cwts.; from the Straits Settlements, 51 cwts.; from France and Germany together, 139 cwts.; in all 2,361 cwts., valued at £14,498, making an average of £6 2*s.* 10*d.* per cwt. There is a considerable traffic carried on between the Chinese mainland ports of Shanghai, Hong Kong, and Canton with the ports

of Tamsuy and Taiwan, on the Island of Formosa, and between the Chinese ports and the ports of Japan.

The Island of Formosa is the chief place where the camphor of commerce is grown. This island is populated by the Chinese, who inhabit the fertile plains, where rice, sugar and indigo are produced, and by a mixed race of civilized aborigines and Chinese, on the lower range of hills where tea and hemp are grown; and in the higher range, amongst the mountains—one of which, called Mount Morrison, is said to be 13,000 feet in height—the camphor laurel flourishes. Here, beyond the boundary line of territory under the Chinese government, have arisen constant disputes with the savage tribes, accompanied often with fearful attrocities and destruction to the timber. The fine camphor trees thus destroyed it will take many years to replace; and as, from the peculiar character of their large, outspreading growth, they only occur at widely-scattered intervals, the time may not be distant when this chief source of profit may be reckoned as one of the things of the past. At present they are limited to the Taiwan and Tamsuy localities, the trees having long since disappeared from the mountains of the southern department accessible to the Chinese settlers. Formerly the camphor trade was a monopoly granted by the Chinese government. The camphor mandarin, as he was termed, who enjoyed this monopoly paid 60,000 dollars annually into the imperial treasury for his privilege, and having obtained the camphor at the rate of about five dollars per pical of $133\frac{1}{3}$ lbs., he would then sell it at twenty-seven dollars. One dollar for duties and some other slight expenses increased the cost, and about ten per cent. was lost by evaporation during transit, for, with the proverbial dogged conservatism of their nation, they insisted on continuing to pack it in wood instead of stowing it in tin cases, by which contrivance it might be all saved.

The profits still remained considerable, and it is the opinion of competent judges upon the spot that, under the peculiar circumstances of the camphor manufacture and trade, a monopoly of this kind, carried out under European superintendence, might even be productive of good results. How long this system had been in existence is not known, but the earliest trade notices, which date back to the commencement of 1862, this monopoly is mentioned as a thing of some standing. At the end of 1868 free trade was proclaimed; but in spite of the promises held out, the traffic did not greatly increase. Local seizures,

intimidation, and persecution by Chinese agents, with many other obstacles placed in the way of British merchants by the native officials, almost amounted to a revival of the monopoly, the abolition of which represented an annual loss to the government of 60,000 dollars. These obstacles required to be removed to induce British merchants to embark their capital in a trade subject to such arbitrary and oppressive interruptions. At the port of Tamsuy the principal article is camphor, and perhaps the most interesting, since Tamsuy seems to be the main source from which the supply is obtained for the European market. The export of 1869 was not quite equal to that of 1868, but was much above the average of former years. The camphor trade seems always to have been carried on in the midst of various claims and disputes. In the earlier part of that year several boatloads of camphor in which English merchants were interested had been plundered in the upper part of the river. The cause of the plundering was alleged to have been some dispute among the Chinese camphor dealers themselves, but pecuniary reparation was made to the owners by the mandarins. At Taiwan, in 1870, the export was valued at £5,316, but the trade had been attended in the south of the island with such heavy losses, owing to the local action of the mandarins, that no fresh operations were commenced. In 1871, at Tamsuy, the trade had met with discouragement in consequence of the Hong Kong prices. The following figures, extracted from the Consular Reports, will best show the commerce at the two ports where the camphor is exported, and it will be observed that the trade at Taiwan has dwindled to the small value of £212, and that it is now almost entirely confined to the more northerly port of Tamsuy. The exports were as follows:

	Taiwan.		Tamsuy.	
	Piculs	£	Cwts.	£
1868 . .	...	2,19[illegible]	17,14[illegible]	...
1869	.....	3,395	16,425	2[illegible],330
1870 . .	2,363	5,316	17,2[illegible]	29,080
1871 . . .	......	.....	11,[illegible]7	15,048
1872 . .	95	212	12,239	2[illegible],563

Vice-Consul Baber maintains that, even under adverse circumstances, the production of camphor succeeds in maintaining itself at about the same annual rate without much progress or retrogression. The production in the San Koying district had decreased about 200 piculs per month, owing to the frequent attacks of the aborigines on the distillers, while the production in the Tokoham region had scarcely increased. The country round Kiamchaiang had afforded an irregular supply of 200 to 300 piculs per month. The three might roughly be estimated 13,200 for the whole of the year 1872. The Customs returns show that of this amount 10,281, piculs were exported in foreign vessels. The price during the same time had ruled at rates showing a profit of two or three dollars per picul to producers. There had been a larger number of Chinese buyers visiting Tamsuy for the Hong Kong market than in former years, owing to the increased facilities for transport afforded by regular steamers. Foreign buyers, not being able to compete with these Chinese, who can live and work cheaper, had not bought so much as in former years. Several Hong Kong Chinese were anxious to obtain transit passes in preference to paying "Ckin," but none had as yet been issued to them. No attempt had been made at renewing the monopoly of former years, and the trade has lost much of the danger which once existed in its pursuit.

The Japanese camphor is produced chiefly in the districts of Tosa, Satsuma and Bungo, and the principal exports are from the ports of Hiogo and Osaka. At Nagasaki, in 1869, a considerable decrease had taken place, in consequence of its having been sent to Hiogo on trial, rather than from any falling off in the production. Only 597 piculs were exported, showing a decrease of 3,974 piculs compared with 1868. The prices ranged from 18 to 23 dollars. In 1870 only 13 piculs were exported from Kanagawa, and from Hiogo the quantity was 15,770 tubs, valued at 220,780 dollars. At Nagasaki the camphor had declined in price the average during the year being $15.25 per picul. This was attributed to the large quantities of Formosa camphor which, since the removal of the restrictions upon its export, had been brought into competition with the Japanese camphor. In the year 1871 the value of camphor exported from Japan amounted to 138,575 dollars, and the following will show also the value and places of export in 1872:

	1871.	1872.
	Dols.	Dols.
Kanagawa	......	1,441
Hiogo and Osaka	......	132,743
Nagasaki	......	18,695
Total	138,575	152,879

Some camphor was sent to England, but the exports were small, in consequence of the high freights, whilst most of the produce of the country, owing to the superiority of the vessels, goes to the Chinese port of Shanghai.—*Chemist and Druggist, June.*

AMERICAN PHARMACEUTICAL ASSOCIATION.

NOTICE OF ANNUAL MEETING.

The Twenty-second Annual Meeting of the American Pharmaceutical Association will convene in the city of Louisville, Kentucky, on the second Tuesday (8th) of September, 1874. The first session will open at 3 P. M.

Those desiring information concerning the meeting, or on business pertaining thereto, should address the permanent Secretary, Prof. John M Maisch, 145 North Tenth street, Philadelphia, Pa.

The Local Secretary, Prof. Emil Scheffer, of Louisville, will render the necessary assistance in connection with the exhibition or other local arrangements. The officers of the Association will, as far as possible, provide every convenience for those desiring to participate in the deliberations; also to those who exhibit articles of pharmaceutical interest. In order that the meeting may be a success, I would urge each member to give all possible assistance in furthering the objects of the Association

It is unnecessary, at this time, to explain its objects or the good already achieved; these are facts well known to all who are practically or scientifically interested in the promotion of Pharmacy. Those who are not so informed I would refer to its Constitution and Annual Proceedings. From a bright star of the pharmaceutical firmament in 1852, the Association has grown to an effulgent sun of intellectual light, its diverging rays, with increasing splendor, permeating every part of this vast country. The various standing committees, representing every phase of interest connected with the trade and profession of pharmacy, will bring farward a valuable store of well-digested information; whilst the exhibition department, so attractive in the past, promises to be unusually large and interesting this year. The many advantages accruing to members, especially those who attend the annual gatherings, the proceedings of which are published in book form, being faithfully recorded facts in the progress of pharmacy and its allied sciences, are essential to every well regulated pharmaceutical library, and in money value being more than equal to the annual dues, should induce every pharmacist and druggist who feels a pride in his vocation, to apply for membership. Copies of the Constitution, by-laws and blank applications for membership will be furnished, by Prof. Maisch, to those who apply for them.

The experiment of electing where the annual meetings shall be held, regardless

of invitations from local organizations, to judge by the results of the last two meetings, is a success, and promises greater usefulness to the Association in the future, by relieving local members from any obligation to give unnecessary attention to visiting members. The good influence of last year's meeting in the South; the large increase of Southern members: the very hospitable manner in which the Association was received and entertained by the pharmacists, druggists and municipal authorities of Richmond; the subsequent organization of the Richmond Pharmaceutical Association, which, doubtless, to some extent, was influenced by this Association, are pleasant remembrances to those who were fortunate enough to be present.

I sincerely hope that equally good results may attend the meeting this year in the Southwest.

All who are interested in the advancement of pharmacy are hereby invited to attend, and to place on exhibition any article of interest relating to the objects of the meeting. In short, the meetings are pleasant and profitable to the overworked pharmacists, socially and intellectually, while they promote the general health, and extend professional and business enterprise.

John F. Hancock, *President.*

Baltimore, July, 1874.

Minutes of the Philadelphia College of Pharmacy.

Philadelphia, Sixth month 29, 1874.

A stated meeting of the Philadelphia College of Pharmacy was held this afternoon in the College Hall. Fourteen members present. Dillwyn Parrish, President, in the chair.

The minutes of the annual meeting in March last were read and adopted.

The minutes of the Board of Trustees were also read by Thos. S. Wiegand, in the absence of William C. Bakes, Secretary of the Board. By these minutes we are informed that the titles to the houses recently purchased on Tenth street, have been passed, and the College is now in full possession of the properties.

The donation of Peter Williamson, referred to the Board, has been designated the "Peter Williamson Scholarship Fund," and the interest accruing from it was directed to be applied annually to the education in the College of such persons as the Board shall select.

The laudable example thus set by the generosity of one of the founders of the College has been favorably spoken of by many of the members, and the hope has been expressed that others interested in the institution may see their way clear to do likewise.

This being the time for an election of delegates to attend the meeting of the American Pharmaceutical Association, to be held in Louisville, in September next, a ballot was ordered. William B. Webb and Samuel S. Bunting, acting as tellers, reported the following gentlemen elected: James T. Shinn, Prof. Jos. P. Remington, Alonzo Robbins, Jos. L. Lemberger, Edward C. Jones. At the same time an election for delegates to attend the Convention of teaching Colleges of Pharmacy, resulted in the choice of James T. Shinn, Prof. John M. Maisch, Prof. Jos. P. Remington.

On motion it was resolved, that each of the above delegations be authorized to fill any vacancies that may occur in their respective bodies.

A resolution offered by William B. Webb, that the Treasurer be authorized to collect the interest on the loans of the city of Philadelphia due the College, was unanimously adopted.

Then on motion adjourned.

WILLIAM J. JENKS, *Secretary.*

Pharmaceutical Colleges and Associations.

PHILADELPHIA COLLEGE OF PHARMACY.—The following document explains itself:

To the Board of Trustees of Philadelphia College of Pharmacy.

Your Committee to whom was referred the subject of granting the title of "Doctor in Pharmacy" to the graduates of this College, respectfully report:

That they have reviewed the discussion of this subject at the convention of the Teaching Colleges of Pharmacy, held in Richmond, Va., in September, 1873, as also the answer of the National College of Pharmacy of Washington, D. C., to the resolution adopted by the said convention (requesting the "National College," to reconsider its determination to grant the above-mentioned title).

Your Committee are unanimous in the opinion that, however expedient a change in the title conferred by this College upon its graduates may become, by reason of the advancement of Pharmaceutical Science, they see cause to deprecate the adoption of the title of "Doctor."

First.—On account of the branches of Pharmacy and practice of medicine being so closely connected with each other, that the title would tend to confusion. A pharmacist engaged in dispensing medicines with the title of "Doctor" would naturally impress the public with the idea that his "title" authorized him to *prescribe* as well as *dispense.* And notwithstanding all argument to the effect of *educating the public* to an understanding of the title, many would constantly apply to the Pharmaceutical Doctor when the *experienced practitioner* in medicine was really the person whose services they desired and required.

Second.—It should be the aim of all Colleges of Pharmacy to *guard* the public in the important matter of "remedies," against the evils attendant upon ignorance and presumption without qualification; to this end we should exercise great caution not to confound the kindred professions of Pharmacy and Medicine, and so lay ourselves open to the charge of *promoting* empiricism by granting a title which *could be used* by persons lax in moral responsibility and professional ethics, to the detriment of the public, in the important matters of health and disease.

Your Committee are impressed with the view that our time-honored title of "Graduate in Pharmacy" should be adhered to, as the primary honor conferred upon the recipient of the Diploma of this College. Much might be said on both sides of an argument in regard to the lexicographic terms "Graduate" and "Doctor." Into this discussion we do not propose entering. It has been the aim of this College so to instruct its pupils that they could practice their profession with safety to the public and with honor to themselves, and when the academic honor of the Diploma of the College is granted, it expresses the *simple fact* that the recipient has graduated or *taken a degree* or rank in the branches in which he has been instructed.

If by industry, study, and the cultivation of habits of close observation, or by reason of peculiar aptitude for any of the branches of natural science, a

graduate should distinguish himself in after life, *then*, in the opinion of your Committee, is the proper time for the College to recognize his services by conferring *another degree.*

Your Committee therefore recommend :

First.—That the title of "Graduate in Pharmacy" be adhered to on granting the Diploma of the College.

Second.—That a graduate of five years' standing, engaged in the practice of Pharmacy, on presenting to the College an original dissertation of *sufficient value*, on any of the branches taught in this College, may have conferred upon him the title of ——— ———.

Third.—A graduate of this College, recognized by the Pharmaceutical Profession as an original investigator in any of the branches of the profession, or as an authority by reason of superiority in some branch of science, may have conferred upon him the title of ——— ———.

DILLWYN PARRISH,
ROBERT BRIDGES,
JOHN M. MAISCH,
JOSEPH P. REMINGTON, } *Committee.*
ALFRED B TAYLOR,
CHARLES BULLOCK,

The Board of Trustees has approved the tenets in the above report, and, after a lengthy discussion, filled the first blank by *Master in Pharmacy*, thus constituting this the second title; while the consideration of the third title has been postponed to a future meeting.

By request of the Board of Trustees the following paper is now printed. It was read at the College meeting, September, 1864, and then referred for publication (See *Amer. Journ. Pharm.*, 1864, p. 538), but was mislaid. Notwithstanding ten years have elapsed since, its interest has not diminished, but rather increased, in consequence of the many improvements and progress during this time. We feel assured that our readers will be edified by the perusal of these reminiscences of one of our oldest druggists and earliest College members. The paper is printed exactly as it was read :

College Hall on Zane Street.

Read at the Semi-Annual Meeting of the Philadelphia College of Pharmacy, held 9th month, 1864.

To give you some idea of pharmacy in Philadelphia, before the establishment of this College, my brother Henry served his apprenticeship, during the war of 1812, with one of the most respectable retailers of the city, and has related to me the fact of his having to sift Glauber salts to make Epsom, and sift carbonate magnesia to get calcined magnesia.

Epsom salts was very little used when I was an apprentice ; we used to purchase from twenty to forty pounds of Glauber at a time, at $2\frac{1}{4}$ cents per pound, while we would only buy a single keg of Epsom, holding about 25 pounds, at 15 cents. The first really nice Epsom salts I recollect having in our store, was the year the College was organized; John Farr, the noted chemist, was going to pay a visit to his friends in London, and offered to make some purchases for us, and one of the articles in that first importation of our house was, two casks, 1,190 pounds of beautiful Epsom salts, at a cost here of 7 cents per pound, which was so much in demand by the retailers that we increased our orders, until the Baltimore manufacturers put a stop to our importations of the article. Super. carb. soda, which has been such a common and uni-

versally used article of latter years, was hardly ever seen when I was learning the business; I think the first we had in our store, was purchased from Farr & Kunzie at $1.25 per pound, in 1821, when we paid them the same price for tartaric acid.

I attended the first and second courses of lectures of this Institution, and should have applied for the diploma had there been any such prize to have been obtained, but the College did not even decide upon the form of a diploma, until I had been in business for myself between three and four years.

Forty years ago, all the calcined magnesia we sold was burned in Abram Miller's pottery, opposite this building, where the public school now stands; we used to take a case of English carb. magnesia, pick out some of the nicest and hardest lumps, and pack the balance in earthen crocks procured from the pottery, and send them round to be put in the kiln when Miller burned his ware.

Philadelphia, 9th month, 1864. SAMUEL F. TROTH.

New York College of Pharmacy.—The Board of Pharmacy appointed by this College consists at present of the following members: Wm. Neergaard, M.D. President; Theobald Frohwein, Secretary; Paul Balluf, Benj. E. Hays, M.D., and W. DeF. Day, M.D. We have been favored with a copy of the second annual statistical report of this Board, up to June 21st, 1874, from which we make the following extracts: At six examination meetings, extending over eighteen days, the Board examined 104 candidates, of whom 71 passed and 33 failed; 82 candidates were examined for the first, 11 for the second, 2 for the the third, and 1 for the fourth time. 19 candidates were proprietors, 3 of whom failed; while of the 85 assistants 22 failed to pass. The total number examined since the organization of the board is 279, and the total rejected 63. Of the proprietors, passing the examination, 7 were natives of the United States, 4 each of Germany and Ireland, and 1 of England. Of the assistants 38 came from the United States, 9 from Germany, 6 from England, 2 each from Canada and Ireland, 3 from Russia, and 1 each from Scotland, France, Poland, Norway, Cuba and Costa Rica.

During the past year 62 proprietors and 101 assistants were registered, making the total registrations 517 proprietors and 546 assistants. The proprietors registered were born in the United States 24, Germany 19, England 4, Ireland 9, Canada 3, and 1 each in Austria, Russia and Cuba; they presented the following certificates of competency: from the Board of Pharmacy 26, from Colleges of Pharmacy 2, from Medical Colleges 14, from Commissioners of Pharmacy 13, from foreign examining boards 6, and 1 from a German university. Of the assistants 37 were born in the United States, 32 in Germany, 8 in England, 5 in Ireland, 3 in Canada, 4 in France, 3 in Russia and Poland, 2 each in Scotland, Austria and Sweden, and 1 each in Norway, Cuba and Costa Rica; their credentials came from the Board of Pharmacy 48, from Colleges of Pharmacy 17, from Medical Colleges 4, from Commissioners of Pharmacy 4, from foreign examining boards 23, from German universities 3, and from French Schools of Pharmacy 2.

The receipts of the Board during the year amounted to $635, the expenses to $403.76, leaving a surplus of $231.24.

Maryland College of Pharmacy.—A regular meeting was held July 9th, 3½ P. M., President Hancock in the chair. The Treasurer's report for the six months ending June 30th evidenced a healthy financial condition of the College. Mr. L. Dursse, of Grafton, West Va., exhibited a new glass percolator designed to prevent loss of menstruum during use, for which he has letters-patent. The President read his annual address, which was referred, with accompanying suggestions, to the Board of Trustees; at its conclusion the College proceeded to the election of officers, which resulted in the re-election of the present incumbents, to wit, Jno. F. Hancock, President; Dr. Edward Eareckson, Secretary; J. Brown Baxley, Treasurer; and L. Dohme, Board of Examiners. The following members were elected delegates to the twenty-second annual meeting A. P. A. Prof. J. Faris Moore, Chairman, Jno. F. Hancock, Louis Dohme, F. Hassencamp and J. Newport Potts. The alternates were Messrs. Jennings, Roberts, Sharp, Webb and Monsarat. Messrs. Moore, Dohme and Roberts were delegated to represent this College in the Convention of Teaching Colleges. On motion adjourned.

J. NEWPORT POTTS, *Reporter.*

Pharmaceutical Associations in Indiana.—In Indianapolis a preliminary meeting was held July 21st, with the view of forming a local pharmaceutical society. Mr. Eli Lilly was appointed Chairman and Mr. Chas. Dennis, Secretary. A committee, consisting of Messrs. Jos. R. Perry, H. B. Cole and Ernest Krauth, to which the chairman was added as an advisory member, was chosen to prepare a constitution and by-laws to be submitted to the meeting.

We learn that it is also contemplated to organize a Pharmaceutical Association at Logansport, Ind.

The Pharmaceutical Society of Paris met June 3d, Vice-president Planchon in the chair. Dr. De Vry read a note on the new alkaloid quinamina,* and presented a specimen of it which had been prepared from a red cinchona bark from the Rungbee plantations, which are situated in Sikkim at the foot of the Himalaya mountains. The following process was employed: The mixed alkaloids were converted into neutral sulphates, and their aqueous solution mixed with a solution of Rochelle salt, whereby quinia and cinchonia are precipitated as sparingly soluble tartrates; the filtrate was treated with caustic soda and ether; the residue from the evaporation of the ether, consisting of quinamina and the amorphous cinchona alkaloid, was converted into neutral acetates, and these dissolved in a rather large quantity of water, from which sulphocyanide of potassium precipitated the amorphous alkaloid, and caustic soda, from the filtrate, the new alkaloid.

Dr. De Vry also read a note on the occurrence of ammonia in normal urine, which was proven by him about 25 years ago; the urine is rendered slightly alkaline by the addition of bicarbonate of sodium, and the filtrate treated with some sulphate of magnesium, avoiding excess, when ammonio-phos-

*See American Journal of Pharmacy, 1872, p. 302.

phate of magnesium will be precipitated; this, on being dissolved in nitric acid, yields the characteristic yellow precipitate with phospho-molybdic acid.

After the reading of a note by Dr. De Vry, on *Cinchona Hasskarliana* of Java, M. Planchon stated that of the same species individuals are found with long pistils and short stamens, and others with long stamens and short pistils.

M. Roucher stated that he has succeeded in converting crystallized digitalin into a globular condition, but as yet has not been able to transform this into crystals.

M. Mayet made some remarks on the plan adopted for the International Pharmacopœia, the preparation of which had been referred to the Paris Society by the International Pharmaceutical Congress of 1867. M. Boudet gave a review of the labor performed by the Committee appointed for that purpose. The work will be laid before this Society in July, and discussed before it is presented to the International Pharmaceutical Congress in St. Petersburg in August.

Editorial Department.

The Twenty-Second Annual Meeting of the American Pharmaceutical Association will open on the eighth of September next, in the city of Louisville, Ky., as will be seen from the announcement by President J. F. Hancock, published on page 389. The Local Secretary has secured excellent accommodations for the meeting, as well as for the exhibition, both of which will be held in Liederkranz Hall; in order to perfect all the preliminary arrangements, all having objects of interest to exhibit are requested to inform, without delay, the Local Secretary, Prof. E. Scheffer, stating amount of space desired. We understand that the applications for space have already been quite numerous, the large industrial exposition, which will be held at Louisville, during the month of September, affording exhibitors the opportunity of displaying their goods in two places; we have also been informed that the license law in the city of Louisville has been abolished, so that every agent or firm from another place can sell there by samples, and exhibitors desiring to dispose of their goods or to sell by samples will meet with nothing antagonistic in their way.

The expected influx of strangers into Louisville, during the Industrial Exposition in September, is such that only the Galt House has agreed to accommodate *all* the expected visiting members and ladies, and, accordingly, this hotel has been selected as the headquarters of the Association. The Louisville Hotel can likewise accommodate a number of members. The hotel charges will be $4.00 a day at the Galt House and $3.50 at the Louisville Hotel.

The convention of the General Passenger Agents of the grand trunk lines of railways running east and west, which was recently held in New York, has delayed negotiations for the contemplated excursion trip to Louisville, and resulted in the refusal of all the through lines to make any reduction of fare. The Eastern members will therefore be obliged to pay full fare both ways, and

may select such routes as are most convenient for them. After a good deal of correspondence between members, the following trip, by way of the Baltimore and Ohio railroad, is proposed: The members will leave Baltimore on Saturday, September 5th, at 6 30 A. M., and stop at Grafton or Parkersburg, there to spend Sunday, and the journey to be resumed on Monday morning, so that the party will arrive at Cincinnati on Monday afternoon at 4.40 o'clock. By this arrangement an opportunity will be afforded of viewing by daylight every portion of the highly interesting and romantic scenery along the entire route. The Secretary has been in correspondence with the hotels, and ample and satisfactory accommodations for the party will be obtained. It is likewise proposed that a parlor car be chartered for the entire trip from Baltimore to Louisville, which can be accomplished at a moderate cost to each member, if a sufficient number will indicate their willingness to join; members intending to participate are therefore requested to notify the Secretary *before* September 1st. Those members who cannot conveniently start with this party from Baltimore can join it by leaving the latter city on Sunday morning, arriving at Parkersburg the same evening at 10 o'clock.

A reduction of fare has been secured by the Local Secretary for the Western members, upon the following conditions:

The Louisville, New Albany and Chicago Railway Co. will sell full fare tickets to our members, which will entitle the holder to return free, when endorsed by the Secretary of the Association; tickets are valid for the year.

The Ohio and Mississippi, and Jeffersonville, Madison and Indianapolis Railroad Co. did not make any special arrangements for our Association, they give out excursion tickets for the Louisville Industrial Exposition at half fare, which tickets hold good for four days, but no trouble at all is connected with having the tickets prolonged.

The Louisville and Great Southern Railroad Line and the Louisville and Nashville Railroad, with their branch roads, will give out excursion tickets only when five persons from one place apply at the same time for such. The return coupons of such excursion ticket will have on its back a blank for certificate of the Secretary that the holder was in attendance at our meeting. Their agents at Memphis, Nashville, Clarkville, Atlanta and Bowling Green have been instructed to sell excursion tickets upon the conditions named.

An excursion of the members and their ladies to the Mammoth Cave has been proposed; those intending to participate are invited to report on their arrival to the Secretary, so that a reduction of the expenses of each member for this special trip may be effected.

The next meeting it is to be expected will, among other results, show a large accession of new members, particularly from Kentucky and the neighboring States, and the attendance of new and old members, it is to be hoped, will be at least as large as it has been at the preceding three or four annual meetings.

The Use of Pharmaceutical Titles.—A man may feel a just pride in anything which has been honestly earned by him; the manner in which he exhibits

his earnings depends altogether upon his individuality and mental culture. The fop, whether rich or poor, will load himself with trinkets of precious metals and stones, or with base imitations of both, in proportion as his purse will afford it, while the truly cultivated will avoid all ostentatious display of dress and decorations, and when wearing ornaments, will select such as are simple, and merely fulfil the objects for which they are used. This broad distinction may likewise be observed in the use of titles, whether earned, begged or purchased; it will be mainly the literary or scientific fop who parades his titles on all suitable or unsuitable occasions.

The title of doctor is continually used in all civilized countries in connection with the members of the medical profession, because they are presumed to continually exercise their functions, in conformity with the duties assumed when obtaining their degree of M. D. The most successful practitioners of medicine, the brightest physicians use this title, undeterred by the fact that many a knave and fop is likewise using it.

It has heretofore, not been customary in this country to use any earned pharmaceutical title. Fifty years ago there was but one College of Pharmacy in the United States, and it was not until 1826, that the title of *Graduate in Pharmacy* was conferred for the first time. It was then not used by those entitled to it, because *then*, from the small number of graduates, the use of the title might have been regarded, as a claim to superiority, which to attest was not the design of the College. During the last thirty years, the propriety of using the title G. P., has been repeatedly suggested and discussed, and it was abandoned for similar reasons. Has the time *now* arrived? We believe such to be the case, for the following reasons:

The number of living graduates is very considerable; Colleges of Pharmacy are now located in different sections of the country; by far the largest number of these Colleges appear to work harmoniously and honestly in the same direction for the elevation of the profession; the attending classes are large, and the number of graduates receiving their diplomas, is at present much larger than the total attendance at all the Colleges not many years ago. With the increase of the opportunities of learning and the perfection of the means of instruction, the number of students has been steadily on the increase, and there are comparatively few young men now learning the business, who cannot make it convenient to attend a College of Pharmacy if they earnestly desire it and labor to accomplish it. The title of G. P., honestly earned, simply indicates that its recipient has attained such a rank, that he is regarded to be competent to practice his profession. We cannot therefore conceive of any reason why this title ought not to be used henceforth by all those who have really earned it. The manner in which it will be used, and the display which will be made with it on suitable or unsuitable occasions, will, to a considerable extent, indicate the mental calibre of its wearer.

These remarks have been suggested by a paper by Mr. Hor. N. Fraser, and by an editorial on "Pharmacal Titles" both of which have appeared in the *Chicago Pharmacist* of July, and express themselves in opposition to the use of G. P. Both writers being graduates in pharmacy, their opposition is the

more weighty. On perusing the two papers, however, we fail to discover any other tangible reason except the abuse that may arise from it, either through the use of G. P. by persons not really authorized to it, or through the lowering of the standard of graduation and the establishment of "grist mills," conferring titles to the best bidders.

We have very little fear of the evil consequences hinted at, as long as the Colleges of Pharmacy and the Pharmaceutical Associations remain true to their objects, and do not hesitate to express their disapproval at any attempt of avoidance of obligations, lowering of standard or arrogant assumption.

In the April number of the *American Journal of Pharmacy* for 1871, which closed the editorial labors of the late Professor Procter, he has, by invitation, publicly expressed his views on pharmaceutical titles, stating that it is desirable to avoid the adoption and use of any titles, for common use by pharmacists, that *will conflict with those of the medical profession.* In suggesting to the the American pharmacists the careful perusal of this paper, we feel assured that they will find in it much food for reflection upon titles adapted to pharmacists, and likewise upon their proper use. In the main, we believe that the views expressed here, will coincide with those entertained by our predecessor in the editorial chair.

Responsibility for Mistakes made in Drug Stores.—In the month of April last a sensational item was published by the daily papers stating that a wholesale drug house in Boston had been fined in damages to the amount of $15,000 for having sold to an apothecary in Fall River a package of ground aconite, which had been erroneously marked "picra;" one ounce of this aconite having been sold as picra by a clerk of the apothecary to a lady, whose life was endangered thereby. This statement appeared to be so extremely absurd that we have been at some pains to get at the merits of the case, and now lay the information, as obtained by us from different sources, before our readers, premising that we have been unable to obtain a record of the entire evidence, or the rulings and charges of the court.

It appears that Mr. Henry G. Webster, of Fall River, sent a lengthy order for drugs to Messrs. Weeks & Potter, of Boston; 2 ℔ of ground aconite root was on the first part and 2 ℔ of picra on the last part of the order. It is claimed that the articles were put up in the order in which they were written down, and that the appointments and general management of the store are such as to render it next to impossible that a mistake in labelling could have occurred, under the circumstances mentioned.

At a time when Mr. Webster's store was temperarily in charge of his clerk, Arthur H. Brown, who had previously served an apprenticeship of about two years in different places, Mrs. Black sent for one ounce of picra, and Mr. Brown opened a bundle at the end to shake out the required quantity. The customer objected that the article did not look like picra and was answered by the clerk that it was all right; it was picra root. Mrs. Black steeped the coarse powder in a pint of gin for about twelve hours, and then took two teaspoonfuls of the liquor, when she at once discovered, from the taste, that the article was not picra, and sent for her physician, who promptly relieved her, so that in a few days she was as well as usual. Mrs. Black then brought suit for damages against the wholesale house, the principal witness being the clerk. The defence, it appears, rested mainly upon the management of the wholesale store and upon the theory that the clerk, after discovering his mistake, exchanged the wrappers of the two bundles. The verdict was for $1500 (not $15,000) damages.

Assuming, for the sake of argument, that the mistake in labelling the bundle

had been made in Boston, this case is one of peculiar interest not only to the profession, but likewise to the public. Messrs. Weeks & Potter, not having sold anything, either directly or by their agents or employees, to Mrs. Black, we fail to see upon what legal or equitable grounds the former could be held responsible to the latter for damages; if they were liable in damages, they could have been so only to the one to whom the damage had been done, namely, to Mr. Webster. The latter having received the wrongly labelled package of ground aconite root, was bound to exercise the ordinary care of examining the articles to satisfy himself of their being correct; omitting this precaution, assuming the contents to be correct, and not acting as the agent of the wholesale house, he naturally assumed, for himself and his agents, towards his customers whatever responsibility might be connected with the disposal of the goods. The ground aconite root bears no resemblance to the powdered picra, the former will not pass through a sieve finer than No. 8, and is easily recognized (in the sample submitted to us) as a root, and by a little investigation even as aconite root; picra, as is well-known, is a fine powder, differing also in color and taste very strikingly from the former. Without requiring a chemical examination, the physical properties of both are such that no apothecary of ordinary attainments and experience can possibly mistake the one for the other, and that the error assumed to have been committed in Boston, should have at once been detected in Fall River, in fact, the difference was such that even the suspicions of the customer were aroused, and were allayed only by the assurance on the part of the clerk that the article was picra *root*. The latter displayed in this transaction a surprising degree of want of information for one who had been at the business for about two years. Had Mr. Webster been present, the supposed erroneous labelling would doubtless have been at once detected and corrected but this not being the case, can Messrs. Weeks & Potter be held responsible for the employment by Mr. Webster of an incompetent clerk, or—if the latter's incompetency was known to him—for permitting him to take upon himself responsibilities for which he was not qualified?

The extraordinary feature of this case appears to us to be the accountability of a firm for no act of their own or of their agents, because *they* would have readily corrected the supposed error in labelling. All apothecaries, the entire drug trade and the public at large are deeply interested in the question: To whom does the responsibility of such a sale really attach? And we shall be glad if it be answered by the decision of a higher tribunal, to which, we have understood, an appeal has been taken. There is no doubt in our minds where the responsibility morally belongs.

Instructor of Pharmacy and Materia Medica in Harvard University.—Prof. G. F. H. Markoe has been recently appointed to this position in the medical department of the Harvard University, and we are pleased to notice this step in advance of other institutions, and the selection for the position of the gentleman, who is actively engaged in the pharmaceutical business and, though not an M. D., qualified for his new duties.

A Serious Explosion occurred on July 3d last, at the laboratory of Allaire, Woodward & Co., Peoria, Ill., severely injuring Mr. H. A. Wetzel, one of the clerks, while powdering chlorate of potassium for the purpose of making some fire works. The newspaper accounts which we have received are not quite clear, but some precaution must have been omitted, the explosion occuring during the trituration. The attention of those occasionally engaged in the manufacture of fire-works is directed to the process for powdering chlorates, published on page 360 of the present number.

Centennial of Chemistry.—A reunion of American chemists will take place July 31st, at Northumberland, Pa., where Priestley, the discoverer of

oxygen, lies entombed The memorial exercises will include an address by Professor Jos. Henry; a sketch of the life and labors of Jos. Priestly, by Professor Henry H. Croft; a review of the century's progress in theoretical chemistry, by Professor T. Sterry Hunt; a similar review of industrial chemistry, by Professor J. Lawrence Smith, and an essay on American contributions to chemistry, by Professor Benj. Silliman.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Treatise on Food and Dietetics, Physiologically and Therapeutically Considered. By F. W. Pavy, M. D., F. R. S. Philadelphia: Henry C. Lea, 1874. 8vo, pp. 574.

No modern treatise on this subject having existed in the English language, Dr. Pavy's work supplies a want which has been very seriously felt, and in a manner which shows that the author is an extensive reader and has judiciously arranged the numerous facts and theories, together with the most striking experiments and the deductions drawn therefrom.

The introductory portion treats of the dynamic relations of food, its origination and its constituent elements. The following chapter is devoted to the classification, chemical relations, digestion, assimilation and physiological uses of food, which term is used as "comprising that which contributes to the growth and nutrition of the body, and, by oxidation, to force-production;" the separation of the ingesta into "food" and "drink" is therefore not recognized. The author is also opposed to Liebig's classification of food into "plastic elements of nutrition" and "elements of respiration," and shows how the former may be appropriated to heat production—and some, at least, of the latter class to the formation of tissue. Food is divided into two—the organic and inorganic divisions—and the former again into nitrogenous and non-nitrogenous principles, the latter forming two groups—the fats and carbohydrates—which with the nitrogenous principles and inorganic materials, constitute four groups, into which all alimentary principles are arranged. The general relations and uses of each group are fully considered; of particular interest appear to us the relation of nitrogenous food and of fat to the production of muscular force and of heat, the metamorphosis and utilization of food of the various groups, the dietetic value of alcohol, &c., the different views and disputed theories being in all cases judiciously arranged and lucidly explained.

The following chapters are devoted to the consideration of all alimentary substances in common use, to the preservation of food, the principles of dietetics, practical dietetics and therapeutic dietetics.

It will be seen from the foregoing that the work may be "instructive and useful" to the educated, but more particular to the medical practitioner; and when the author, in the preface, expresses the hope that his task "may not be deemed superfluous," it seems to us that he has truly conferred a great benefit upon all interested in the subject matter of his work, and that nobody will study its pages without having derived valuable instruction therefrom, and without considering it not only useful, but next to indispensable.

Medical Literature of Kentucky. By Lunsford P. Landell, M.D. Louisville: John P. Morton & Co., Printers. 1874. 8vo, pp. 52.

This interesting essay, which was read before the Kentucky State Medical Society, gives biographical sketches and reviews of the writings of the medical practitioners of Kentucky, commencing just previous to the beginning of the present century, and arranging the authors in the order of their appearance. An account of the origin of the medical schools of Kentucky is likewise given.

THE

AMERICAN JOURNAL OF PHARMACY.

SEPTEMBER, 1874.

WISTAR'S LOZENGES.

By Franklin C. Hill.

Until 1856 the manufacture of cylindrical lozenges of licorice, gum and sugar was a matter of such difficulty that few attempted it on a large scale, and the best article then produced was so badly made that it would be unsalable at this time.

The change that has come over this manufacture is due, apparently, to the machine and processes introduced by me. The machine is represented in the cut here given. The best material is black walnut, well seasoned, for the machine, and pine or poplar for the drying board, which, by the way, should be just long enough to slide in under "the board." There are two springs under the board, that catch in the notches in the ends of the drying-board, and prevent its return after it is pushed forward. The whole upper surface of the drying-board is cut with a proper plane into shallow grooves, about three-eighths of an inch wide and one-sixteenth deep. The springs must be so placed as to bring a groove under the opening between board and guard.

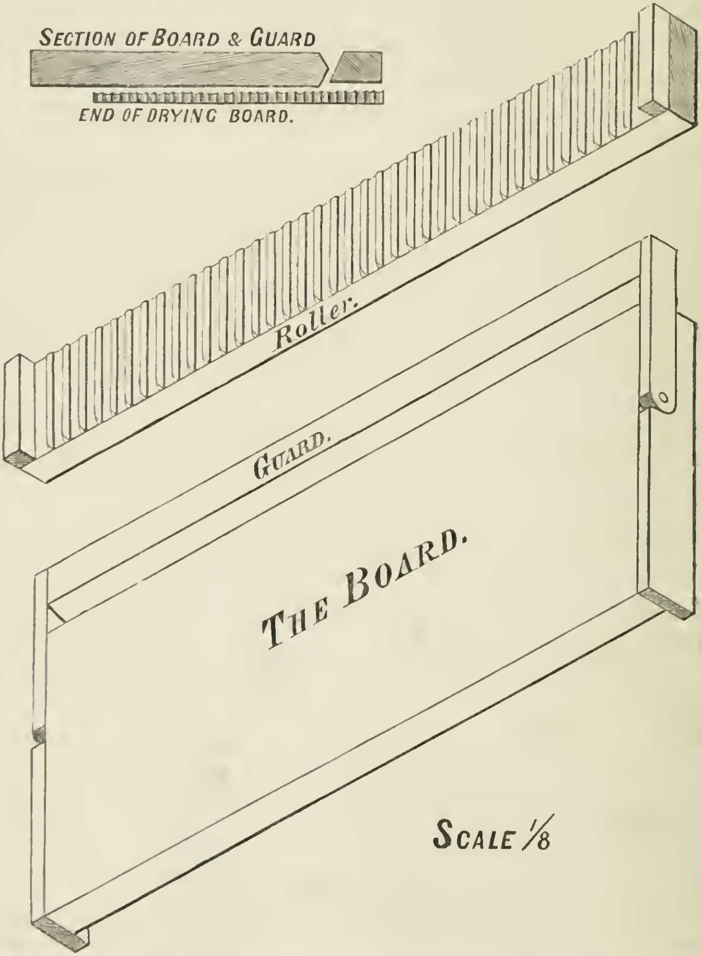
The knives of the roller are made of sheet brass let into saw kerfs cut across the wood, and the upper edges are made smooth and true. Each drying-board, of one foot width, will hold about two pounds of lozenges.

Oil the whole machine, when new, with olive oil. It is convenient to have another cutter, with knives placed say two inches apart, and standing one-half inch high.

Having mixed a mass of about one pound weight, roll it quickly with the second roller, and cut it into the right number of pieces. Then roll each piece to the full length of the board within the end cleets, mark it with the knife deeply, but take care not to cut it

through, and with the same motion carry it forward until it falls down behind the guard, and rests in one of the grooves of the dryer. With the fingers push the dryer forward one notch, and repeat.

When the lozenges are dry, shake them off, and they will snap at the marked places without any trouble.



After getting used to the machine the guard may be taken off; but I always liked to use it, and, with all respect to those now making them, be it said I turned out the best finished lozenges that have ever been in the market.

The quantity of water to be used in mixing the mass varies with

the quality of the gum used—the best gum taking the most water. The tendency of the mass to take on an elastic condition, like India rubber, which is the terror of all makers of "Wistar," is owing to the gum getting wet. If the gum can be kept dry until the lozenges are rolled, the mass is easily worked, and then the absorption of the water by the gum hardens the lozenge at once, and prevents their flattening. Therefore make the water thick by dissolving the sugar in it, so that the gum gets wet slowly. I made a syrup with seventeen pounds of sugar to the gallon of water, and used it before cold enough to deposit sugar.

Each lot of gum should be tested as to the water it will bear, and if it will not allow all the sugar to be put in as syrup, the rest should be added in very fine powder. A good hand can make two pounds an hour, and some can make four pounds in that time.

The tendency to brownness can be overcome by care in mixing; it depends on the order in which the gum and licorice are added, though I do not now remember just how. I can make them chestnut or black, at will.

The best materials, of course, make the best lozenges, and are the easiest to work.

There is another point to be considered, and that is the weather. In Philadelphia, it is of no use to try to make good round lozenges when the wind is easterly. In Cincinnati, the conditions are reversed, and the west wind is bad for them.

The ill-shaped and flattened lozenges that are so often met with, are probably those made when the wind was wrong. They absorbed moisture at first instead of drying, and fell. Those made during a cold northwest wind (in Philadelphia) dry in a few hours.

A great many druggists, with less knowledge of the mechanical properties of gum arabic than they should have, have tried to make these lozenges by pressure, forcing the mass through holes. It cannot be done; because it takes enormous power, and because the surface of lozenges so made will always be rough and torn, and must be so from the nature of the mass. But the idea constantly comes up again, and machines are made, and fail. As late as 1847 I found a sanguine inventor, working mysteriously in his back shop with closed doors, but his results have never been published. He would not allow me to see the machine, but I drew out from him the admission that he was working on the old maccaroni plan.

A friend in Philadelphia reminds me that I first suggested the making of licorice lozenges by leaving the morphia out of "Wistar." I had forgotten it, but am perfectly willing to take the credit due for keeping opiates out of the public, especially as "credit" is all the machines have ever brought me.

Yellow Springs, Ohio.

PILLS OF SULPHATE OF QUINIA.

Editor American Journal of Pharmacy:

The existing formulæ for making quinia pills have probably proved unsatisfactory to many of your readers. The process of the U. S. P. yields a rather bulky and unsightly pill. With glycerin alone as an excipient, one obtains (if fingers and tools are clean) a white, but large pill, and the mass is apt to be either crumbly or flabby. Made with dilute sulphuric acid the product is small and solid, but the mass hardens so quickly when it begins to set that it can be worked only in small batches. Recent experiments have led me to the adoption of the following method, which, after an experience of three months, and the making of some thousands of pills, I pronounce unexceptionable:

Take of Sulphate of Quinia . . .	600 grs.
Tartaric acid, ...	100 grs.
Glycerin, pure, . . .	75 minims

Rub the quinia and acid together in a mortar to a fine powder, till no appearance of crystals remains, add the glycerin—just 75 minims, no more nor less—and continue the trituration till the powder becomes adherent, when it should be beaten into proper form for handling and divided into the required number of pills. The mass is firm, solid, rolls well, does not set for some hours, is, in fact, a "beautiful mass," and the pill will be found quite small for their weight, very white, if rolled in starch powder, and however old or dry they may become, they remain perfectly and entirely soluble.

Let me repeat that the quantity of glycerin is just right, though it seems at first insufficient for such a bulk of quinia, but in connection with the tartaric acid it does the work, though requiring patient trituration. Even a very few drops of glycerin more than the proportion given will render the mass inconveniently sticky.

H. P. Reynolds.

Plainfield, N. J., August 6, 1874.

OIL FROM NUX VOMICA.

By Charles Bullock.

In the preparation of extract of nux vomica, with the intention of having the extract sufficiently hard to permit of pulverization, the hardening process was conducted in a porcelain vessel heated by a steam jacket. As the extract solidified each night on cooling, the oily matter rose to the surface, and was removed before reheating. From 150 pounds of nux vomica five pints of oil were obtained.

To ascertain whether this oil contained any notable portion of the alkaloids of nux vomica, four fluidounces of the oil was agitated with water acidulated with sulphuric acid, the water allowed to separate by long standing, and then was removed. The process of washing was repeated as long as the washings were disturbed by a solution of caustic soda.

On the addition of the soda solution to a slight excess immediate precipitation occurred, the precipitate on stirring aggregated into a wax-like mass, at the end of twenty-four hours the solution was filled with a copious gelatinous deposit. Both precipitates were collected on a filter, washed to remove the excess of alkali and treated with water acidulated with sulphuric acid until exhausted. The acid solution was neutralized with soda, the alkaloids collected on a filter, dried and dissolved in hot dilute alcohol. The alcoholic solution yielded 10·6 grains of alkaloids.

The presence of strychnia was shown by the characteristic violet color, when treated with sulphuric acid and chromate of potassium, but as the alkaloids dissolved *almost* completely in warm absolute alcohol, strychnia could only be present in small quantity, the major part being brucia.

The gelatinous matter when dry weighed 14 grains. Heated on platinum foil it remained unchanged, and was sparingly soluble in hydrochloric acid. When boiled with a solution of pure carbonate of potassium, and the filtered solution neutralized with nitric acid, the addition of nitrate of barium produced no change (absence of sulphuric and phosphoric acids). The insoluble portion remained insoluble in dilute hydrochloric acid, the precipitate was, therefore, not a salt of the alkaline earths.

A *second* portion was fused with pure caustic soda, the fused mass dissolved completely in water. To a part solution of chloride of ammonium was added, producing a copious flocculent precipitate, show-

ing the base to be alumina. To the remaining portion of the soda solution, after super-saturation with nitric acid, solution of molybdate of ammonium was added, no reaction took place, even after long standing, showing the entire absence of phosphoric acid.

Prof. J. M. Maisch has noticed the presence of earthy phosphates in nux vomica [*Amer. Journ. Pharm.*, Vol. 32, p. 524]. In this instance the phosphoric acid may have been removed by long digestion with dilute sulphuric acid and subsequent precipitation by soda.

The presence of alkaloids in the oil rendered apparent the suggestion of Prof. Procter, that, when the oil is removed, it should be agitated with a little dilute alcohol, which takes from it any adhering extractive matter. *Vide*, note to ext. nux vomica, U. S. Dispensatory.

Philadelphia, *August*, 1874.

THE COHESION FIGURES OF OILS AS TESTS FOR THEIR IDENTITY AND PURITY.

By Miss Kate Crane.

Becoming interested, from articles in the *Chemical News* of 1869, in the cohesion-figures of oils as tests for their identity and purity, I was led a few weeks ago to experiment with some varieties, and upon the suggestion of a friend I submit an account of some of my work to the readers of the *American Journal of Pharmacy*.

With the comparatively few trials I have made I am convinced that a little patient practice will teach the eye in a short time to detect the characteristic differences of the figures. To make these perfect it is necessary to observe the time in forming, for at *different periods* some varieties form figures very like, but with this precaution each is entirely characteristic. It is essential that the dish used, &c., be perfectly clean, so that when filled with water no dust or lint floats upon the surface, as this materially interferes with the perfect formation of the figure.

A single drop is let fall from a burette or glass rod, held steadily about four inches above the water, upon the centre of the surface.

I experimented with a number of volatile oils, by themselves and mixed in different proportions with *oil of turpentine*.

The last-named oil, by itself, spreads instantly to the whole size of the plate, a common soup plate, and almost immediately the edge begins to break into irregular shapes, when a rapid motion takes place over

the whole surface of the film, there seems to be a contest between the cohesion of the oil particles and the adhesion between them and the water. The oil makes repeated efforts to gather itself closer together, when the water instantly reacts, giving a wavy appearance to the whole figure. The play of colors at this point is beautiful and serves to bring out the lines more perfectly. In a few seconds innumerable little holes appear over the surface, which soon are separated only by threaded lines, and the figure is like the most exquisitely fine lace.

Oil of cinnamon forms a figure not more than half the size of the last named. In a few seconds small portions are detached, and shortly separates into distinct drops, four or five larger and a number of smaller ones, scattered about. With mixtures in different proportions of *oil of turpentine,* the figures formed differently, taking more the characteristics of the adulterant as it predominated.

Oil of nutmeg forms a large figure instantly, the edge showing a beaded line. It gathers itself together and spreads again, very like oil of turpentine, but the surface presents more the appearance of watered silk. Within 60 seconds some holes appear, and in 80 more the surface is covered with them; these scarcely spread to more than a sixteenth of an inch in diameter, but from the first each is bordered with a dotted edge. The figure lasts some time without changing materially, except the openings lengthen out into an oblong shape, remaining entirely distinct. The play of colors is very fine. With the addition of one-third the volume of *oil of turpentine,* the first spreading is little different, but openings appear in half the time and the dotted border does not come as soon; in about four minutes the figure is most characteristically marked, and soon breaks up entirely, this being the distinctive difference between the pure oil and the mixture.

Oil of peppermint spreads instantly to a large figure, and in ten or fifteen seconds openings appear, which increase rapidly in size; at first they look some like the last named, but are not nearly so numerous, and the border soon is more like tiny drops. In one and a half or two minutes they begin to run together and the figure breaks up. With the addition of *turpentine oil* the figure forms more slowly, and the breaking up is less rapid, but in five minutes the outlines only remain.

Oil of bergamot spreads instantly, in 30 seconds tiny openings appear, not very abundant, and increase in size slowly; in five minutes they

are not larger than oil of nutmeg at one and a half minutes. At first they have a dotted border, but as they increase in size this changes to a scalloped film, which spreads until, in eight or ten minutes, they are joined together over the whole surface.

This, with *turpentine oil,* gives a watered surface in spreading, much more marked and with a finer play of colors.

Experiments with fixed oils are as follows: *poppy-seed oil* spreads instantly to a large figure, retaining an entire outline, and for a few seconds the surface is unbroken, except the bare intimation of a beaded edge. In a few moments little holes appear around the edge and soon the whole surface is broken in like manner, these increase in size very slowly. In fifteen minutes the edge begins to open forming indentations, which gradually work their way across the figure. As they increase in length these begin to curve, and in three-quarters of an hour have doubled themselves two or three times.

Cod liver oil spreads in a large film; a little way from the edge a row of small holes appear, and in a minute or two the surface is covered with them; these gradually enlarge, assuming irregular shapes, soon separated by branching lines.

Cod-liver oil with *lard oil* spreads very like the former, but in a few moments the edge opens and the film separates partly across, in a moment one of the projecting points begins to curve itself towards the centre, bending more and more until it forms a coil. Meanwhile a few holes have appeared, which spread irregularly, throwing out projecting points.

Castor oil spreads instantly, the edge remaining entire; openings appear thickly in thirty seconds and increase gradually, but unevenly, those nearer the edge being larger, and lengthening out irregularly as they spread. The figure lasts some time. *Castor* with a little *lard oil* makes a smaller figure, and not nearly so much broken, in five minutes the holes open into each other and the figure breaks up from the edge.

A mixture of *castor* and *poppy-seed oils* spreads to form a lace-work border, but smoothes out to an entire edge soon, and within a few seconds openings appear. The figure in size and general appearance is more like castor oil alone, but the holes spread less uniformly in a given time, a few being larger, but the greater portion much smaller. In fifteen minutes there is a general tendency to break up.

Castor with a little *croton oil* throws out a spray, which in a few

moments unites into a thin film. The spray, as it spreads, draws out the inner portion into radiate points, which open into a beautiful network, the centre cohering closely.

Croton oil throws out, in spreading, a fine spray in advance of the more closely cohering portion, which follows quickly. The outer edge breaks up unevenly into little indentations, the border of the inside portion being quite broken, but gradually becomes nearly entire. The surface too has openings, which increase quite rapidly in size, the outer ones being much the larger. In the final breaking up, before the holes open one into another, the outlines are beautifully fringed.

I experimented with the varieties of *olive oil*, alone, and with mixtures of the varieties, and with the addition of other oils; but I did not get the perfectly formed figures in so short a time as Dr. Moffat mentions.* My material, probably, had either been adulterated, or was not fresh, which last, I think, would make quite a difference. However, with each variety and mixture the figure was different. If the impurities were the same that Dr. Moffat used, it appears that differences in proportion are capable of detection. Indeed, in several instances, I decided that an approximate calculation of the amount of adulteration is quite satisfactorily shown by the figures formed.

Of many of the fixed-oil figures I obtained very nice patterns by Dr. Moffat's method—dropping thin glazed paper upon the perfectly formed figure, for an instant, then pressing between blotting paper to absorb the surplus oil; or, to bring out the pattern more clearly, floating the paper upon a colored liquid for a moment or two before pressing.

No written description can give any idea of the beauty of these figures, many of the formations being very delicately and peculiarly marked; while more beautiful than the form, and often equally characteristic is the exquisite play of colors upon the surface.

University of Michigan, July, 1874.

COMMERCIAL MERCURIAL OINTMENT.

By Jacob A. Muthersbough, Ph. G.

Extracted from an Inaugural Essay.

In consideration of the varying strength of the mercurial ointment as found in the market, I thought that it might be of some interest to

* Chem. News, XVIII, No. 473.

ascertain its variation in strength, which as will be seen by the following results, is considerable. Ten samples of the ointment were obtained from different establishments, and in each and every case, they were represented to be the officinal article. 100 grains of these ointments yielded respectively: 1, 48½ grs.; 2, 48½ grs.; 3, 48 grs.; 4, 46 grs.; 5, 30 grs.; 6, 30 grs.; 7, 26 grs.; 8, 25 grs.; 9, 24 grs.; and 10, 22 grains of mercury. The experiments were all conducted alike and under similar circumstances. The process employed to separate the mercury was as follows: 100 grains ointment were put into a large test-tube with one fluidounce of muriatic acid, and boiled until the grease separated and floated on the surface, the liquid portion was then separated from the black powder; to this powder another fluidounce of muriatic acid was added and the whole boiled until the mercury ran into a globule; the liquid portion was separated as before, the mercury washed with benzin to remove the last traces of fat, and finally washed with water, dried and weighed. The ointments that yielded from 45 to 48 per cent. of mercury, may be considered as being of full strength, as in separating it by the above process, there is a slight loss, say of about 2½ per cent. to 5 per cent. A sample of mercurial ointment known to contain one-third of mercury was examined by this process, and yielded the requisite amount of mercury. Three samples of blue mass were also tested in a similar manner, and in each case they were found to be of the officinal strength.

SYRUPUS ASSAFŒTIDÆ

By J. W. Wood.

An eligible syrup of assafœtida, that would be not unpleasant to the patient, and also keep a reasonable length of time without change, has long been a desideratum among physicians and pharmacists. Many formulas have been published, but none seems to have met with general favor; and some produced so unstable a preparation as to render them altogether worthless. In experimenting towards these difficulties, the admirable solvent properties of glycerin, and its slight medicinal activity, commended it as a suitable medium, and the results prove that a very desirable and not unhandsome preparation may be obtained, that meets all the above requirements and is also

very conveniently prepared, without that method of continued rubbing so generally employed.

℞.	Assafœtida, select, . . .	grs. 256
	Glycerin.	f℥ii
	Alcohol, 95 per cent., . .	f℥iii
	Oil of Gaultheria, . . .	gttxv
	Oil of Cinnamon, . . .	gttv
	Oil of Bitter Almonds, . . .	gtti

Dissolve the assafœtida in the glycerin by the aid of a gentle heat, and strain if necessary. Dissolve the essential oils in the alcohol and add to the above, after which add simple syrup sufficient to make the whole measure one pint and incorporate thoroughly. Each fluidrachm will represent two grains of the gum resin.

This is a perfectly stable preparation.

A sample, which I made over two years ago, does not seem to have deteriorated in the least, and is, I think, as palatable as any syrup of assafœtida can be rendered of such strength.

Wilmington, Del., August, 1874.

THE ABUSES OF ELEGANT PHARMACY.

By Richard V. Mattison, Ph. G.

The attention of the writer has recently been a number of times called to new improvements in pharmaceutical science, some justly meriting the favorable consideration of pharmacists, while others cannot but be disapproved; among the latter class as one of the most recent improvements, tending to almost utterly destroy the therapeutic value of several well-known officinal preparations, let us notice the recent extensive use of the alkaline citrates as an adjuvant, thought peculiarly suitable to the elegant administration of the higher salts of iron.

Robiquet, in experimenting with ferric pyrophosphate, accidentally discovered that a solution of ammonium citrate would render the ferric salt soluble, thus giving birth to a new idea, the advent of which was, without further investigation, heralded forth to the world as an important chemical discovery, and was at once recognized as a desideratum long sought—a soluble phosphate of iron. Though a salt of pyrophosphoric acid, the therapeutic value of which is certainly questionable, such was its apparent elegance that the fact was overlooked

until quite recently, and not until this salt had unfortunately been made officinal in our Pharmacopœia, and designated as ferri pyrophosphas.

The scales constituting the officinal salt were supposed by Robiquet to be merely a mixture of ammonium citrate and ferric pyrophosphate. This probably is erroneous, for in the preparation of this salt the addition of solution of ammonium citrate to the ferric pyrophosphate decomposes the latter, and the elements being interchanged, pyrophosphate of ammonium and citrate of iron and ammonium are formed, thus:

$$2\,(Fe'''_2\,3\,SO_4) + 3\,Na_4P_2O_7 = Fe'''_4\,(P_2O_7)_3 + 6\,Na_2\,SO_4.$$

$$Fe'''_2\,(P_2O_7)_3 + 8\,(NH_4)_3\,C_6H_5O_7 = 4\,(Fe'''\,(NH_4)_3\,2\,C_6H_5O_7) + 3\,(NH_4)_4\,P_2O_7.$$

The tendency of late years is to concentrate medicines. We can see no advantage in administering iron and ammonium citrate in this form, diluted so largely with the ammonium pyrophosphate. Why not use the required quantity of ferric citrate at once, and discard the use of the officinal "ferric-pyrophosphate?"

For years the demand for elegant pharmaceutical preparations has been steadily increasing, giving rise to the "specialties" of various manufactures with which our markets are flooded. It is probably this demand, coupled with a taste for chemistry, that led Mr. J. A. Creuse into the experiments which resulted in the discovery of a class of scale salts analogous to the ferri pyrophosphas (U. S. P.) noticed above, and which, for a time, bid fair to rob us of the most valued of our chalybeates, and substitute a comparatively worthless series in their stead.

This discovery was at once seized upon by prominent manufacturers, and elixir of gentian with tincture of chloride of iron prepared with solution of potassium citrate, "tasteless, inodorous and palatable," was heralded forth, by advertisement and circular, with commercial travellers, along every main line and branch road in the country, and physicians were liberally sampled and egregiously humbugged.

The writer is a strong advocate of "elegant pharmacy," but is not a believer in sacrificing the medicinal virtue of any drug or chemical for its palatable effect; therefore notices with regret a recent article, by Dr. C. G. Polk, on "Sesquisalts of Iron" (*Druggists' Circular*, April, 1874), from which we quote. Speaking of scarlatina, etc.:

"To trifle with the ferric chloride by using potassic citrate in such cases would be almost criminal." He justly condemns the use of alkaline citrates, as used in the "tasteless tincture chloride iron." In the same article he advocates their use in the preparation of the so-called phosphate of iron and quinia elixir, and also for a preparation to which he gives the name of "potassio-citrate of the phosphate of iron." We fear this name will lead to a new system of chemical nomenclature, not at present explained in our test-books.

In the same article, both the U. S. P. preparations of ferric chloride and syrup of ferrous iodide, are sharply criticized, and for the latter, higher oxidation, with the use of the inevitable potassium citrate and the improved formula of Prof. Remington, recommended. The name of "tasteless syrup of iodide of iron" is unfortunate, as the preparation contains no iodide of iron. This can be proven by evaporating to dryness, and washing upon a filter with anhydrous alcohol. The filtrate, upon evaporation, leaves crystals of potassium iodide (this was first shown in *The Pharmacist*, 1873), and shows the decomposition analogous to that occurring in the U. S. P. ferric pyrophosphate.

After a thorough trial in the preparation of liquor ferri chloridi and syrupus ferri iodidi upon a somewhat extended scale, our opinion is that the officinal formulas will be found difficult to improve upon. In conclusion, with all who love Pharmacy, for its own sake, we join hands in entering our protest against one of the abuses of elegant pharmacy.

[Note by the Editor.—Robiquet did not regard his preparation as a *mixture* of citrate of ammonium and pyrophosphate of iron, but as a double salt, about the correct composition of which, however, he expressed no opinion. This view has never been fully disproven. Many crystallizable double salts are decomposed by alcohol and other solvents, in which only one of its component salts is soluble, or which contain the elements for forming such a soluble compound. But even if it were proven that the solutions of these iron salts with alkaline citrates did not contain any double salt, it does not follow that the decomposition takes place in as simple a manner as indicated by the equations contained in the above paper. By patient researches, extending over a period of eight or nine years (1854 to 1862), J. H. Gladstone has proven that mixed solutions of two salts, of different bases and acids, interchange them partly in such a manner that *four*

salts are found in the solution, provided that no insoluble compound is formed. The salts in question, if they be no true double salts, would therefore be mixtures of at least four salts, and in the case of the officinal pyrophosphate of iron, would contain a portion of that compound unaltered, but in a soluble condition. Whether the medicinal value of this salt is questionable, we leave to physicians to determine; but it appears to us to possess valuable properties, though perhaps not superior to those of the ordinary phosphate, if in a similar soluble condition.

We advocate what may be called elegant pharmacy, but we are opposed to what we consider a degradation of pharmacy and of medicine, which we find in the easy virtue of many physicians of listening to, and practically approving of, the claims of superiority for thousands of semi secret medicines, and in the indolence of many pharmacists, which is abundantly manifested by purchasing numerous preparations, which could be made by them of as good, if not better, quality, and as cheap, if not cheaper, than those purchased. According to our view, elegant pharmacy should be practised in the pharmacist's shop, and not in the manufacturer's laboratory.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

A False Angustura Bark has been described by the editor in the February number, page 50, of this journal. Profs. Oberlin and Schlagdenhauffen, of Nancy, state that, in a large number of pharmacies of the department of Meurthe et Moselle, and in French drug stores generally, a bark is met with, the physical and organoleptic characters of which correspond completely with those described in the place mentioned above. They have been, since the close of 1873, occupied in studying this bark, and report the same to be derived from *Esenbeckia febrifuga*, Martius, s. *Evodia febrifuga*, Saint Hilaire, tribe Pilocarpeæ, nat. ord. Diosmaceæ. The tree is very abundant in the province of Minas Geraes, Brazil, where it is known as *Tres folhas vermelhas* or *Laranjeiro do mato.* The bark is highly esteemed as a tonic, febrifuge and antidysenteric, and is called by the natives *China Piavi*, *China du Brésil* (Brazil bark). The authors have discovered in this bark an alkaloid, which they promise to describe hereafter.—*Jour. de Pharm. et de Chim.*, 1874, *August*, *p.* 105.

Preparations of Bromide of Iron.—Mr. Prince proposes a standard solution, containing one-third of its weight of the bromide, and which is prepared by pouring into a quart flask 100 grams iron filings, free from rust; 768 grams water, and 210 grams bromine, the latter to be added in five portions; loss of bromine evaporation is avoided by keeping the orifice closed with a cork. After combination has been effected, the contents of the flask, including the iron, are transferred to a suitable bottle, which is kept well stopped. Of the clear liquid, 30 grams are rapidly evaporated to dryness, and the residue should weigh exactly 10 grams.

Troches of Bromide of Iron are made by evaporating 18 grams of the standard solution to one-half, and incorporating it with an intimate mixture of 1·5 grm. powdered tragacanth and 100·5 grm. sugar; the mass to be divided into 120 troches.

For Pills of Bromide of Iron, 12 grm. of the standard solution and 0·1 grm. powdered iron are evaporated to expel all the water, and the residue while still hot is rapidly mixed, in a warm and dry mortar, with sufficient powdered liquorice root and gum arabic; the mass to be divided into 80 pills. Each lozenge and pill contains 0·05 grm., or $\frac{3}{4}$ gr. of ferrous bromide.

A Syrup of Bromide of Iron is proposed to be made by mixing 12 grm. of the standard solution with 620 grm., or half a litre of gum syrup flavored with orange-flower water.—*L'Union Pharmac.*, 1874, *July.*

Syrup of Hypophosphite of Iron is recommended by P. Carles to be made by dissolving 15 grm. of ferrous sulphate in 20 grams, and 9·14 grm. of crystallized hypophosphite of calcium in 330 grm. of hot distilled water; the mixed solutions are forcibly agitated, after fifteen minutes the magma is thrown upon a linen strainer, expressed, the liquid filtered through paper, and enough water added to make the weight of the filtrate 360 grams, in which 660 grams of sugar are to be dissolved by the aid of a moderate heat.

The syrup should be kept in bottles, well filled. Each tablespoonful, weighing 25 grams, contains 0·25 grams of the hypophosphite. If mixed with an equal quantity of orange-flower syrup, it has a very agreeable taste.—*Ibid.*

New Test for Iodates.—Egidio Pollacci states that phosphorus liberates iodine from aqueous solutions of iodates, and is itself oxidized to

phosphoric acid. The reaction is readily made in a test-tube containing the liquid, which, after the introduction of a fragment of phosphorus, gradually assumes a brown-yellow color, and, on being left to repose, deposits small scales of iodine upon the surface of the phosphorus. The presence of free iodine may then be demonstrated by starch or bisulphide of carbon, in the usual manner. Amorphous phosphorus acts upon the iodates even more energetically than ordinary phosphorus, the reduction of the iodine being so rapid that a lively agitation is produced in the liquid.

On the other hand, iodate of potassium may be employed as a very delicate test for free phosphorus.—*Jour. de Phar. et de Chim.*, 1874. *August, p.* 104—*Gaz. Chim. Ital.*, iii.

Elixir of Tar.—Magnes-Laheus proposes to triturate 5 grams of tar (of Pinus maritima) with 15 grams of sugar, and then with 100 grams of 67 per cent. alcohol, which is to be added gradually. When the sugar is dissolved the liquid is filtered, and contains then 3 grms. of the hydro-alcoholic extract of tar, or 0·15 grms. in the coffeespoonful. The latter quantity is sufficient for a glassful of water, and yields a good tar water, containing a very small proportion of alcohol. —*Ibid., p.* 126.

Suppositories of Chloral have been recommended by Dr. Const. Paul in cancer of the uterus. They are made from cacao butter 11 grams, white wax 7 grams, and chloral hydrate 6 grams, to be divided into six suppositories.—*Ibid.*, 128.

Nitrite of Amyl.—Prof. A. Hilger recommends the following as the best process for preparing this medicinal agent.* Nitrous acid, prepared from arsenious and nitric acids is passed into chemically pure amylic alcohol at a temperature of 70° to 90° C., until the odor of amylic alcohol is no longer perceived. The distillate is rapidly agitated with magnesium oxide or diluted potassa solution, then dehydrated by, and finally rectified over chloride of calcium, which must not be alkaline, only the portion distilling between 90° and 95° C. being collected. It is then free from acid reaction, has a pale yellow color, a peculiar characteristic odor, a boiling point of 94–95° C. and a specific gravity of 0·902 to ·9026. In contact with the air it soon

*The author was evidently not aware of the experiments of A. B. Tanner, whose process was published on page 21 of this Journal for January, 1872.—Ed. Am. Jour. Pharm.

acquires an acid reaction, nitrous and nitric acid being formed, after which valerianic acid and amylic valerianate appear; amylic alcohol is likewise found among the products of decomposition, but hydrocyanic acid could not be detected. Moisture does not prevent the decomposition, and the author suggests to preserve the amylic nitrite by the addition of a little fused pure chloride of calcium and calcined magnesia.

E. Rennard likewise rejects the use of nitric acid in preparing this nitrite, and recommends the employment of nitrous acid; he gives ·877 as the specific gravity of amylic nitrite, which, however, according to Hilger is not correct.—*Archiv d. Ph.*, 1874, *June*, 485–489.

Mercuric Oleate.—Prof. Hilger found that precipitated and rapidly dried mercuric oxid is easily dissolved in oleic acid at a temperature not exceeding 60° or 70° C.; a higher temperature causes decomposition of the acid and separation of mercury. With 15 or 16 per cent. of mercuric oxide the oleate constitutes a thick liquid; with more oxide it becomes solid. A solution of 30 per cent. mercuric oxide in oleic acid is possible under the above precautions; a larger quantity causes decomposition. Chemically pure oleate of mercury could not be obtained by double decomposition of either aqueous or alcoholic solutions. To obtain the oleate of a firmer consistence, the author recommends the addition of a little palmitic or stearic to the oleic acid.—*Ibid.*, 490–493.

Decoction of Salep is best prepared and the formation of lumps completely avoided, if the powdered salep is first moistened with a few drops of alcohol, before it is submitted to the action of water.—Depaifve in *Jour. de Phar. d'Anvers*, 1874, p. 264.

THE VANILLA.*

The vanilla is remarkable for its climing habit, which is not common among orchids. There are several species, most of which are natives of the hot and damp regions of South and Central America; the genus is also represented in tropical Asia and Africa. The stems climb to the height of twenty or thirty feet, twining round the trunks of trees, and throwing out a profusion of aërial roots, some of which eventually reach the ground, as is the case with the banyan,

* From the Gardener's Chronicle for May 23d, 1874.

while others float in the air. The leaves are thick and fleshy, as also are the greenish-white flowers. The important part of the plant, however, is the pod, which, in some of the species, is an article of commerce, and yields the delicious flavoring which is so well known. Some little uncertainty exists as to which of the species produces the most valuable fruit. It appears, however, that *V. planifolia* and *V. aromatica* are the most important, although *V. guianensis*, *V. palmarum* and *V. pompona* also yield some of the vanilla of commerce. The pods as imported are narrow and flattened, from five to ten inches long, and of a dark brown color; they are pulpy within, and contain a great number of very small dark seeds.

A great part of the vanilla of commerce is brought from Mexico and Venezuela, and principally from Vera Cruz, whence, according to Humboldt, the value of the annual export, in his time, was 40,000 dols. The cultivation is mainly carried on at Misantla, twenty-four leagues northwest of Vera Cruz, the inhabitants of which are the only people in Mexico who cultivate the plant. The growth is indeed extremely easy, as the ground requires no tilling; slips of the vanilla plant are set at the foot of a tree on the approach of the rainy season, and soon begin to spread up the trunk. The plantations are cleared once a year from weeds and undergrowth, and in the third year the plants bear fruit.

Five varieties are recognized by the growers. One, the vanille de cochon, is so called from emitting an offensive smell whilst drying. The harvest begins about December, when the fruit becomes yellowish-green. There are two ways of preparing it for the market. In one method the fruit is allowed to dry until the pod looses its green color. Straw mats covered with woolen blankets are spread on the ground and when these are warmed through the fruits are spread on them and exposed to the sun. After a time they are wrapped in blankets, and placed in boxes covered with cloths, after which they are again exposed. In about twelve hours the fruits should become of a coffee color, but if they do not, the process is repeated. After about two months daily exposure they are tied up in bundles of fifty and packed in tin boxes. Five qualities of vanilla pods are known; the best is the *primiera*, the pods of which are twenty-four centimetres long and proportionately thick. The second quality is called *chica prima*, the pods of which are shorter, and two count as one; the third, *sacate;* and the fourth, *vesacate*, are still smaller, four of the latter being

reckoned for one; they are gathered before they are ripe. The fifth and poorest quality is called *basura;* the fruit is very small, spotted, and much cut or broken about.

The following is another method of preparing vanilla for the market: About 12,000 of the pods are strung together by their lower end, as near as possible to the footstalk; "the whole are plunged for an instant into boiling water to blanch them; they are then hung up in the open air and exposed to the sun for a few hours. By some they are wrapped in woolen cloths to sweat. Next day they are lightly smeared with oil by means of a feather or the fingers, and are surrounded with oiled cotton, to prevent the valves from opening. As they become dry, on inverting their upper end they discharge a viscid liquor from it, and they are pressed several times with oiled fingers to promote its flow. The dried pods, like the berries of pepper, change color under the drying operation, grow brown, wrinkled, soft, and and shrink to one-fourth of their original size. In this state they are touched a second time with oil, but very sparingly, because with too much oil they would loose some of their delicious perfume."

It appears somewhat remarkable that the cultivation of vanilla in the West Indies has not been largely undertaken, as it would be attended with but little difficulty, and would be a source of much profit to the inhabitants. But even in Caraccas and Guiana, where the plant grows profusely in a wild state, it is entirely neglected. In the Isle of Bourbon, however, it has been cultivated with considerable success, and seventeen and a half tons were exported from Réunion in 1871. At Liège it is grown, on a small scale, to the value of 600 francs per annum; and a plant cultivated at Paris, in 1840, attained the height of three yards, and yielded 117 pods, which ripened in twelve months. In England it has been in cultivation since 1759: fine examples may be seen in the tropical and economic houses at Kew. Mr. Ewing and Mr. E. Bennett grew the vanilla with considerable success at Osberton; the latter gathered no less than 300 ripe pods off a single plant in one season. He considers a temperature of from 50° to 70° to be most suitable for it. He found it necessary to effect fertilization by artificial means, the stigma being prevented from receiving the pollen of its own flower by the interposition of an organ called the retinaculum.

As the English-grown pods are very highly flavored, it is possible that it might be practicable to grow it for economic purposes. The

annual import of vanilla amounts to about five or six cwts.; its price varies very greatly, being sometimes as high as 125*s*. per pound, and at other times as low as 26*s*.

The chief use of the vanilla is in flavoring perfumery and confectionery, and especially chocolate. One pod is sufficient to flavor a pound and a half of chocolate, being ground with sugar for that purpose. The fragrance is said to act upon the system as an aromatic stimulant, exhilarating the mind and increasing the energy of the animal system. It is occasionally employed on the Continent in cases of hysteria; and is used by the Spanish physicians in America as an antidote to poison and to the bite of venomous animals, as well as in other cases. A liquid used in Peru, where it is known as *Baume de vanille*, exudes from the open pods at perfect maturity. The fruits in time become covered with an efflorescence of fine needle-like crystals which possess properties similar to those of benzoic acid; when viewed through a microscope, with polarized light, they are very beautiful objects.

De Menonville, who traveled to Guaxaca in 1777, thus describes his discovery of vanilla in that district. After various hindrances and disappointments he says: "At length an Indian with a hoe in his hand, made his appearance. 'Brother,' said I, holding out a dollar, 'show me some vanilla and this is yours.' He coolly bade me follow him, and advancing a few steps through the underwood into a thicket, in which were a number of trees, he immediately climbed up one, threw down to me two pods of vanilla perfectly ripe, and pointed out to me a branch on which several others were hanging, yet green, together with two faded flowers. The form of the leaves, the fruit, the peculiar smell of the plant—ererything convinced me that it was the real vanilla, in everything corresponding with such as I had seen at Vera Cruz. All the trees of this little copse were covered with it. I saw a quantity of green fruit, but collected no more than six specimens of these, and four large pods which were ripe. I caused the Indian afterwards to part from the roots some of the scions which had sprung up. These I tied well together, wrapping up the whole in the leaves of an Arum, which at their base are three feet wide. After thus packing a faggot, which weighed upwards of 30 lb., I placed it in my large sack, which I fastened on my horse. I was so well satisfied with my Indian, that, besides what I promised him, I gave him two reals in addition. For his part, unwilling to be outdone

in generosity, he ran to his hut and brought me three other pods of vanilla."

The Chica vanilla of Panama is yielded by another Orchid, a species of Sobralia. The expressed juice of *V. claviculata*, a native of mountainous woods in the West Indies, is applied to recent wounds, and is hence called by the French in San Domingo *Lian à blessures*. There is a species known as *zizpic* in Yucatan, which is a great ornament of the *cenotes*, or subterranean water caverns of the country. These singular caverns are sometimes entirely subterranean, and are then, of course without vegetation ; frequently, however, they are more or less open at the top, when they are often of surpassing beauty on account of the luxuriant development of vegetable life which they contain. To these *cenotes* the few ferns of Yucatan are almost confined, and it is here that this vanilla attains perfection. The pods are occasionally taken to market at Valladolid, where they may be bought at an almost nominal price.—*Pharm. Journ. and Trans., July* 11, 1874.

INDENTITY OF SCAMMONIN PREPARED FROM THE ROOT OF CONVOLVULUS SCAMMONIA, WITH THAT OBTAINED FROM ALEPPO SCAMMONY.*

By Professor H. Spirgatis.

Some time since† the author published an account of an investigation of the chemical constitution of scammonin, the resin of *Convolvulus Scammonia*, Linn. The scammonin used by him on that occasion was obtained from so-called Aleppo scammony,—*i. e.*, the milky juice of the above-named plant hardened in the air,—the latter substance being at that time the only material containing scammonin that could be supplied. But as at the present time the root itself of *C. Scammonia* comes into commerce from Asia Minor, and as the German Pharmacopœia requires that the officinal Resina Scammoniæ should be prepared from it, the author considered it desirable also to prepare scammonin direct from the root, and to compare it with that formerly prepared by him from scammony. This inquiry seemed to him to be the more desirable since it has been affirmed that the two bodies are not identical.

The scammonin was prepared from the roots in the ordinary way, by exhausting them with water, removing the resin with spirit, de-

* *Neues Repertorium für Pharmacie*, xxiii., 260.
† *Annalen der Chem. und Pharm.*, cxvi., 289.

colorizing the alcoholic solution with animal charcoal, distilling off the spirit, and repeated washing of the separated resin with hot water. Professor Spirgatis was not able to observe any difference between the scammonin so prepared and that previously obtained from Aleppo scammony, some of which he had still in his possession. Both bodies are amorphous, colorless, transparent, without smell or taste, presenting the same phenomena in combustion, and presenting also precisely the same behavior to solvent and chemical reagents, such as alcohol, ether, chloroform, petroleum, oil of turpentine, acetic acid, concentrated sulphuric acid, caustic potash and soda and their carbonates, ammonia, and in alcoholic solution with acetate of copper, acetate of lead, nitrate of silver and chloride of iron.

Finally the scammonin prepared from the root, dried at 100° C., gave in three experiments the composition—

	1.	2.	3.
C . . .	56·62	56·59	56·62
H . . .	7·75	7 70	7·88
O . . .	—	—	—

Whilst a fresh combustion of some of the old resin under similar conditions gave, as on the former occasion, the figures—

C	56 60
H	7·76
O	—

The author considers it, therefore, unquestionable that the scammonin prepared direct from the root is identical with that formerly prepared by him from Aleppo scammony.—*Pharm. Jour. and Trans., July* 25, 1874.

SCAMMONY AND ITS ADULTERATION.

By A. F. Haselden, F.L.S.

Authors have stated that chalk, starch, gum, common resin, guaiacum, jalap resin, decoction of jalap, and of the leaves and twigs or villous stems of the scammony plant, senna, manna, gamboge and ivory black, are used for the purpose of adulterating scammony.

The following form for making spurious scammony has been published as being followed by some dealers :

Gum Scammony, . . .	6 pounds.
Gum Arabic, ...	6 pounds.
Calomel, ...	2 ounces.
Aleppo Scammony, ...	1 pound.
Ivory Black and Water, . . .	q. s.

This was printed and published forty years ago, yet not so far back but that some may remember having seen it. Whatever may have been the case then, I do not believe for one moment that any such system is now followed—unless it be in an article I have before me, and obtained recently, yclept *skillet*, valued at 13*s* per lb., and so named, I infer, from the pot in which it was melted and mixed together. Of the use to which this is put I am quite ignorant.

I have never yet found common resin, guaiacum or jalap resin in scammony; at the present time obviously, jalap resin would not be used, as it is dearer than scammony resin. Common resin and guaiacum are readily found if present. That there are several qualities of scammony or scammonium of the B. P. in the market, and I presume in use, there can be no question. I have before me five wholesale price lists, wherein I see Aleppo scammony quoted from 18*s*. to 38*s*. per lb., and virgin scammony from 34*s*. to 40*s*. and 44*s*. per lb. This variation may be readily understood, as one buyer may purchase under more favorable circumstances, or such an article may vary in quality without fault of any one, and thus fetch a less price. In one instance out of the five lists, scammonium B. P. is quoted at 60*s*. per lb.; this must be something exceptional. Resin of scammony does not vary much in price, being quoted from 13*s*. to 16*s*. per lb. I have some which cost me 30*s*., but the manufacturers of this article will, I believe, discontinue making it, as it possesses intrinsically no advantage over the cheaper; the difference in the cost, I am led to think, arises from the employment of pure spirit in one case, and methylated in the other, and though the spirit would be recovered, there must be some lost. These resins may be readily examined by burning, and I found the quantity of residue precisely similar in both, amounting to less than five per cent. of ash.

I would now venture to suggest where, perhaps, the framers of the Pharmacopœia compounds in which scammony is employed seem to have acted inconsistently. In the London Pharmacopœias, before the publication of the B. P., virgin scammony was invariably ordered. In 1864, a permission or discretion was placed in the hands of the compounder, in making extract. colocynth. co., to use either scammony *or* resin of scammony; in 1867, B. P., *resin* of scammony alone is ordered, leaving no option, whilst in pilul. colocynth. comp., of both books, scammony, meaning virgin scammony, is required. It may be worth while to inquire why this apparent confliction; that

which seems good for the extract might be thought good for the pill, the confection and the compound powder. I will now refer to the opinions expressed years ago, when the resin of scammony was introduced by Messrs. McAndrew. In Vol. xviii, page 452, 1st series *Pharm. Journ.* Dr. Fred. J. Farre is stated to have reported at the evening meeting of the Society, Feb. 3d, 1859, as follows:—"The principal cases, therefore, are Nos. 1 and 3; in these I think the resin and virgin scammony acted about equally well. In the first case both purged effectually and quickly, the virgin scammony rather the most; each griped upon one occasion, and not upon the other. In the third case the resin purged the most, but it also griped the most. As far, therefore, as I can judge from these few trials (five cases), I am of opinion that the medicinal value of the two preparations is about equal." Dr. Johnson reported also well of the resin. Upon the same occasion Dr. A. B. Garrod spoke favorably of it, as thus:

"From these numerous observations, 120 in number, together with many others which have not been tabulated, I am quite convinced that the scammony by the new process from the untapped root is quite equal as a remedy to the very best virgin scammony met with in commerce, and equal, in fact, to the resin which is extracted from commercial scammony by means of ether, and it possesses this most important advantage over the scammony of commerce, namely, of being entirely free from the frauds which are constantly practised upon it in the country where the plant grows, and in which it has hitherto been collected, and therefore being perfectly uniform in its physical characters, composition and therapeutic action. There can, therefore, be no objection, but manifest advantage, in employing it in place of the scammony commonly met with."

In the same volume, p. 548, I find myself writing favorably of the new resin, and after fifteen years I see no reason to alter that opinion. After these quotations I feel that I may safely suggest that, in the next edition of the B. P., resin of scammony may be introduced in the place of scammonium, and in prescribing the mode of obtaining scammonium, if retained, instead of saying "a gum-resin obtained by *incision* from the living root," it would give more correct information if stated by cutting the living root *through* at the top, about two inches from the neck, below where the stalks spring from.

I come now to the consideration of the employment of the resin

from another point of view. A genuine article may be readily obtained at a moderate price, and it may be easily examined; but, so long as the authorities require virgin scammony to be used, I would recommend that the best that can possibly be obtained be bought, and this practice alone would soon stop the admixtures abroad, which I cannot but think arise from want of care on the part of the collectors, the mode in which it is collected, and the temptation there is to make weight.

Let me impress upon those who may have any doubt upon the subject that the substitution of the cheap scammony for the scammonium of the B. P. in the preparations contained in that book, or where scammony is ordered by prescribers, is virtually an adulteration. The B. P. states that from eighty to ninety per cent. of resin may be extracted by ether, but it would be unreasonable to expect that every pound in a chest taken out separately would yield that percentage, and therefore some margin should be allowed in the examination of such a substance before it is condemned as being adulterated.—*Pharm. Journ. and Trans.*, *July* 18, 1874.

CONTRIBUTIONS TO VEGETABLE CHEMISTRY.

By F. A. Hartsen.

Thamus Red.—In order to obtain the coloring matter from the fruit of *Thamus communis*, it is pressed, and the juice boiled; the coloring matter is thus precipitated along with the coagulated albumen. The color is extracted from the dried precipitate by benzene, and a further quantity may be obtained from the dried pods by the same solvent. On allowing the bright orange-colored solution to evaporate, it deposits thamus red in thin prisms or plates, which may be freed from adhering fatty matter by boiling with a solution of potassium hydrate, and recrystallizing from benzene. It is insoluble in water, readily soluble in alcohol and ether, and very soluble in benzene. It dyes linen and silk, and resists the action of strong alkalies. It is not attacked by boiling nitric acid, but dissolves in concentrated sulphuric acid, with an indigo-blue color.

Influence of the Time of Year on Plant Chemistry.—In autumn the author was unable to obtain chrysophyll either from *Ulmus* or from *Mercurialis perennis*, although both readily yielded it in the spring. In autumn, too, the chlorophyll obtained from plants, even before the

color of the leaves has undergone any perceptible change, is very easily alterable. *Isopyrum thalyctroïdes*, at its blossoming time, gives two alkaloids, one crystalline, the other amorphous; but in autumn, when the green part of the plant is withered, the former disappears, whilst the latter occurs in larger quantity. This is an important fact for the technical preparation of alkaloids, especially with such substances as opium, which contain several alkaloids.

Examination of Agaricus fasciculatus and Lactarius deliciosus.—The fungus is pressed and treated with alcohol, in order to remove water, then macerated with a mixture of alcohol, and the ether removed from the extract by distillation. On cooling, the alcoholic solution which remains deposits crystals, which are freed from fat by boiling alcohol. By means of ether the crystals may be separated into *mycosterin* and *mycoraphin*, the latter of which is more soluble. The exhausted fungus still yields some mycosterin by treatment with benzene. Both substances are soluble in water, difficultly soluble in cold alcohol. Mycosterin crystallizes in small nodules or spherules, consisting of concentrically grouped needles. Mycoraphin crystallizes in two forms, from alcohol in plates, and from ether in thin needles, which are colored red when heated with concentrated sulphuric acid. It is possible that Gobley's agaracin is a mixture of these two substances.

Preparation of Pure Chlorophyll.——Finely chopped ivy leaves (*Hedera helix*) are made into a paste with spirit of 55°, and pressed after twelve hours. This removes the water, a bitter substance (*helicin*), and a saponifiable compound. The pressed leaves are now soaked in benzene for twenty-four hours, and the benzene is removed from the expressed solution by distillation. The dark brown fatty residue, amounting to 2½ per cent. of the leaves, is treated with a solution of sodium hydrate, filtered, and precipitated by common salt. The precipitate, after being washed with a salt solution, is dissolved in water, and precipitated with a solution of copper sulphate. This precipitate, after being washed and dried, is boiled with absolute alcohol, and then washed with ether and benzene; this treatment removes the copper soap, and leaves the compound of chlorophyll with copper oxide. Finally, the latter is suspended in alcohol, and decomposed by sulphuretted hydrogen. On evaporating the solution, the chlorophyll is left of a very dark green color, almost black, and quite free from fatty matter. It is soluble in hydrochloric acid and

in alcohol, yielding a solution of a very fine green color.—*Journ. Chem. Soc.*, 1874, *July*, from *Chem. Centr.*

COMPARATIVE METHOD OF DETERMINING TANNING MATERIALS.

By E. Schmidt.

The question to be solved is—Knowing that a certain weight, P, of pure tannin is required to obtain a certain result, how much of another tanning body, *e.g.*, the extract of a wood, is required to produce the same result? None of the published methods for the determination of tannin is sufficiently precise, easy, and rapid for industrial purposes. The author proposes a modification of Pribram's method with sugar of lead.

A. *Preparation of the Test Liquor.*—50 grms. neutral acetate of lead are dissolved in 400 grms. of alcohol at 92 per cent. and distilled water is added so as to make up 1 litre.

On the other hand, 1 grm. of tannin is dissolved in 40 grms. of alcohol at the same strength, and the solution is made up with water to the bulk of 100 c.c.

This being done, 10 c.c. of the tannin solution are taken, 20 c.c. of water are added, and heated to 60°. The lead liquor is then run into the hot solution with a burette graduated to tenths of a c.c., so long as a precipitate is formed. At this temperature, and with these alcoholised liquids, the precipitate forms and settles rapidly. Iodide of Potassium may be used as an indicator to show excess of lead, proceeding in the same manner as is done with ferrocyanide in titrating phosphates with nitrate of uranium. If we suppose that to precipitate 10 c.c. of the tannin solution 28 degrees of the lead liquor have been required, then 2·8 c.c. of the latter = 0·10 grm. of tannin.

B. *Preparation of the Sample to be Tested.*—Suppose that chestnut-bark is to be examined. It is coarsely powdered, and 10 grms. are mixed with an equal volume of washed sand, and exhausted with water at 50° or 60° C. The filtered liquid is evaporated to dryness in the water bath in a tared porcelain capsule. After evaporation the capsule is weighed, which shows the yield of the bark in aqueous extract. This extract is taken up in 40 grms. of alcohol at 92°, and water is added to make up 100 c.c. This liquid is filtered if needful. In this manner the resinous, albumenoid, pectic, and gummy matters are got rid off.

C. *Titration.*—The liquid thus prepared is divided into two parts. the first, one-third of the entire volume, serves for direct determination of the acetate of lead. Suppose that a gram of the dry extract of chestnut has required—for 10 c.c. of the tannin liquor—in three successive experiments, 16, 17, and 16 degrees of the burette, which corresponds to 57 per cent. of tannin. But this figure 57 represents, not only tannin, but every other substance capable of precipitating acetate of lead.

The tannin is then absorbed with bone black, previously washed with hydrochloric acid, and dried at 100° C. in the following manner:—We act with bone-black upon the tanning liquor, and on a solution of pure tannin prepared at a standard somewhat lower than that indicated for the extract by the first direct titration. In the present case this solution of tannin should be prepared at 55 per cent.

From one and the same glass tube, about 1 centimetre in diameter, we cut off two lengths of 20 centimetres each, and we draw out each at one of its ends. The two tubes are fixed perpendicularly, with the point downwards, and plugged with a little carded cotton. Into each is put 10 grms. of the bone-black, pouring into one of them the second part of the tanning liquor under examination, and into the other the same volume of the pure solution of pure tannin at 55 per cent.

We then take of the tanning liquor (which has retained its original brown color in spite of the bone black) 20 c.c., and after having heated it to 60° C., we drop in the standard lead liquor from the burette as before. Two successive trials show 16 degrees, =8 degrees for 10 c.c., in place of the 16 degrees found for 10 c.c. on direct titration. On the other hand, 20 c.c. of the solution of pure tannin require 14 degrees, or 7 for 10 c.c. Thus we see that in the tanning liquor (chestnut extract) there is a certain quantity of matter which acts upon the standard lead solution like tannin, corresponding to 1 degree of the lead liquor, *i. e.* to 357-thousandths of a centigram of tannin, 28 degrees therefore correspond to 10 centigrammes. The figure 57 obtained by direct titration is, therefore, too high by 3·57 per cent. and the extract contains 57–3·57=53·43 per cent. of tannin.—*Chem. News* (*London*) *July*, 1874, from *Bull. de la Soc. Chim. de Paris.*

NOTE ON PROCTER'S REACTION OF GALLIC ACID.

By Professor Flückiger.

In this journal,* it is stated that a mixture of faintly alkaline arseniate and gallic acid in aqueous solution by absorption of oxygen developes a green color.

There can be no doubt as to the correctness of the fact. I wish only to point out that the arseniate, that is to say, arsenic acid, has nothing whatever to do with this reaction. The phosphates, borates, silicates, carbonates, etc., may quite as well be used instead of the arseniate. The cause of the green reaction is the presence of a trifling amount of alkali, a fact which has long been well-known and expressly recorded, for instance, in Gmelin's "Organic Chemistry," among other reactions of gallic acid. The reaction is developed by any alkali, caustic or not, provided it be present in but extremely small quantity. Thus bicarbonate of sodium is a very convenient means of showing the reaction under notice; it displays, it need scarcely be mentioned, but a very moderate alkaline reaction.

The green reaction, it will be observed, has its merit, as it is not produced either by gallotannic acid or by pyrogallol.

There is another reaction which likewise is sufficient to distinguish gallic acid. If to an aqueous solution of gallic acid some drops of a dilute solution of ferrous sulphate (about one part of vitrol in 100 of water) are added, the mixture remains for some time colorless, provided the gallic acid be free from tannic acid, and the ferrous salt from ferric; the solutions, moreover, ought to be made in the very moment they are to be used. Ferrous gallate is of an intense violet hue; but it is not produced in the above mixture, because the solution of the sulphate has an acid reaction. This is due to sulphuric acid, which can be superceded by acetic acid if we add a little acetate of sodium. Then a trace of acetic acid is set free, and this now is not able to prevent the development of the violet color of ferrous gallate; an intense violet instantly makes its appearance.—*Pharm. Journal and Trans.* (*London*) *August*, 1874.

A NEW REMEDY FOR HAY FEVER AND SNEEZING.

By Horace Dobell, M. D.

Senior Physician to the Royal Hospital for Diseases of the Chest.

At this season of the year, when "sneezers" and sufferers from "hay fever" are in the depths of their miseries, it is merciful to make

* Amer. Journal of Pharmacy, August, 1874, p. 373.

public any reasonable suggestion for their relief. I have, therefore, much pleasure in being able to bring forward a little contrivance and a prescription, by the combined use of which immense comfort may be given to many sufferers.

The prescription is as follows:

Chloral Hydrate and Camphor (of each),	16 grains,
Carbolic Acid, ...	20 grains.
Pure Morphia, ...	13 grains.
Oleic Acid (enough to dissolve the morphia),	20 grains.
Castor Oil (the clearest and finest), .	7 drachms.

Rub well together to make a lotion.*

The "contrivance" is for the efficient application of the above remedy and consists of a minature bottle contained in a little box-wood case, so that it can be carried easily in the pocket. To the lid of the box is attached the cork of the bottle, and to the cork, in the same fashion as the spoon of a cayenne-pepper cruet, is fixed a little club-shaped rod of polished ivory, long enough to reach to the bottom of the bottle, and also to the upper extremity of the nostril. The little bottle is kept half full of the lotion above prescribed, and the little rod immersed in it. Directly the patient feels the tickle or other signal of a coming sneeze, he uncorks his bottle, withdraws the ivory club, wet with the oleaginous lotion, and gently pushes it up the nostril till it reaches the seat of the sneeze-signal; there it should be gently pressed, so as to apply the lotion to the part. After this the club is withdrawn and returned to its little bottle of fluid, where it becomes at once charged for a fresh application. As often as the sneeze threatens the operation should be repeated. Very often one application will keep off a threatened *fit* of sneezing altogether, even though its first effect may be to excite a sneeze.

I have requested Messrs. Savory and Moore to keep this little appliance ready-made and charged with the lotion, so that it can be sent by post without difficulty or delay. It has been of so much comfort in cases within my own practice, that I am sure it is worth while for one who has not yet found a remedy to give it a trial.

In cases accompanied by much throat irritation, it is advisable to combine with this treatment the use of the "Lozenges for Postnasal

* As different perfumes affect different patients peculiarly, no scent is added in this formula; but any one who prefers it may have it scented by the addition of whatever perfume is known to suit best.

Catarrh," prepared from a prescription formerly published by me ("On Winter Cough," etc., 2nd edition, p. 204), and always kept ready-made by Bell, Savory, Squire, Corbyn, Hanbury, and other leading chemists.

I may add that, when there is great prostration, and a tonic is required, Tincture of Eucalyptus Globulus will sometimes answer better than quinia, especially if there is much feverishness.

None of these remedies should be used without consulting the doctor in attendance on the case.

THE OILS OF CHINESE PHARMACY AND COMMERCE.

By Dr. F. Porter Smith,

Honorary Member of the Pharmaceutical Society of Great Britain.

The word for oil in Chinese is written as a compound of the characters for liquidity and let. Oil thus means with them the "letting liquid," that which removes the hindrance of friction. The enormous demand for oil as an article of daily diet to counteract the binding qualities of rice and other cereal foods, and in pastry-making, and the extensive use of varnishes, putties, paints, and pigments in China, lead to the manufacture of oil from all sorts of sources. Oil is exclusively used for lighting purposes in all stationary situations. It also enters into the composition of quack and orthodox plasters, a very favorite application in Chinese medicine and surgery. By the use of night-soil, on an extensive scale, in the form of irrigation, the rapid growth of enormous breadths of Cruciferous plants (a populous order in China) enables the Chinese to obtain large quantities of oil from this source. These colza-oils are miscalled olive-oil in some European manuals on China. The olive-tree is not known in China. Certain extracts are sometimes called oils in Chinese nomenclature. Soy is called an oil.

Oil of Almonds (Sweet).—A bland oil is said by Sir J. Davis to be obtained from the (mixed ?) kernels of the apricot or almond-trees in North China, but I have never met with it.

Oil of (Star) Anise.—This oil is said by Dr. S. Wells Williams to be prepared from the fruits in small retorts, a hundred weight yielding about seven pounds of the oil. It is pale, warm, and sweetish, and becomes solid at about 50°. It is used as a condiment and cordial in

South China, and is exported thence to Europe and the United States. The common anise-oil has not been met with by me in China.

Oil of Apricot Seeds.—See Oil of Almonds.

Oil of Beans.—This oil is expressed in large quantities in North China, and at Newchwang, from the Dolichos Soja bean, by both natives and foreigners. The oil is often miscalled pea-oil, is dark, not very palatable, and has some tendency to cause sickness. It is used in cooking very largely, and is very cheap.

Oil of Benzoin.—A fragrant, oily preparation is sold under this name, but it is not liquid benzoin. Dr. Williams says it comes from India. It is used in making ointments and plasters. It is probably liquid storax, or the rose-maloes of commerce.

Oil of Cabbage.—This oil, a kind of colza-oil, is expressed from the seeds of *Brassica Sinensis*, in increasing quantities, all through the valleys of the Yang-tsze and Han rivers. Very primitive machinery is used for this purpose. The seeds are crushed, steamed, and put into wooden cylinders, usually made by hollowing out the trunks of trees. The oil is squeezed out of the mass placed in coarse bags, by means of wedges driven down by mallets, or by an arrangement similar to that by means of which piles are generally driven into the earth in this country. In the last case water power is sometimes employed. The proportional yield is very considerable. The oil is of a dark yellow color, thick, and has a pleasant odor. It is used for lamps, in cooking, and as a hair-oil. It is laxative, or even purgative to some extent, and applied to swellings, sores, and ulcers.

Oil of Camellia.—This oil is prepared from the seeds of the capsular fruit of the *Camellia oleifera*, or mountain tea-tree, as the Chinese call this shrub, which grows in the same situation and soil as the tea-shrub proper, known by the same generic name, *Ch'a* or *Ts'a.* This tea-oil, as it is miscalled by foreigners in China, is thinnish, yellow, and less fragrant than cabbage-oil. Large quantities of this oil come from the hilly districts of Kiang-si and Hunan provinces, where the shrub grows in profusion.

Oil of Camphor.—Oily or uncrystallizable camphor is obtained in the island of Formosa, in the form of a yellow, strong-smelling liquid, which exudes from the crude native camphor, stored in tubs or vats, to the extent of some 3 or 4 per cent. It is scarcely salable, and is

altogether inferior to the oil obtained from the *Dryobalanops camphora*, on the west coast of Sumatra, where the oil dripping from the split timber of the tree, felled to procure the Borneo or Baros camphor, is sold at the price of a Dutch guilder for a large quart bottleful. It would be worth importing to England for use as a cheap substitute for the Lin. Camphoræ. It answers capitally as an embrocation in rheumatism and sprains.

Oil of Chaulmugra.—This oil is made from the seeds of the *Gynocardia odorata*, or lucrubau fruits. The oil is both cold-drawn and made by superheating the crushed seeds. It is used in leprosy as an outward application, with doubtful benefit, and is *useful* in the treatment of pediculi and itch.

Oil of Cinnamon or Cassia.—This volatile oil, obtained from the leaves and twigs of the cassia-tree by distillation, is made in Canton, and regularly exported. It is the *Oleum Malabathri* of commerce. This oil is nearly as good as the Ceylon oil.

Oil of Cloves.—A well-made, heavy, acrid oil, of a pale reddish-brown color, becoming very dark by age and exposure to light. None of these essential oils were known to the old medical writers in China, and are, therefore, not met with, as a rule, in their Pharmacopœia or Herbal. They are nearly all made at Canton, and are obvious imitations of European articles of commerce.

Oil of Cotton Seeds.—The oil expressed from the seeds of *Gossypium herbaceum*, and *G. religiosum*, is commonly used for purposes of illumination in Chinese country villages, where all wants are met on the spot in the most primitive fashion. It is also used in cooking, but the taste is unpleasant. It is prescribed as a demulcent remedy, and is applied to leprous, scabious, and other forms of skin disease, so fearfully prevalent in China.

Oil of Fish.—The Chinese do not, as far as I can learn, extract oil from the liver of any fish, but there is an oil called *Yu san*, prepared from the entrails, etc., of a fish. The cod has not been met with in Chinese waters. Large quantities of a fish resembling the cod are caught off the coast of the Chehkiang (or Ningpo) province, in the sixth or seventh (Chinese) months. The oil obtained from the porpoise (or "river-pig," as they call it), which frequents the Yang-tzse-Kiang river as far up as Hankow, is used to make putty for caulking

vessels, and to burn in ship lamps. A yellow oil obtained from a fish, called *Hwang-ku-yu*, has a strong fishy smell, and is used to destroy lice. It is much used in veterinary medical practice, a department of the Chinese medical art which has been practised from an early period, and has an ancient and respectable literature of its own.

Oil of Ground Nuts.—This pale yellow oil, having an agreeable flavor, is expressed in large quantities from the seeds of the *Arachis hypogæa*, or underground nut. Hunan province supplies a good deal. It is very cheap, and makes a fair substitute for olive oil. The Chinese samples are much darker than the Indian, which are said by Dr. Waring to have a specific gravity of ·916.

Oil of Hemp Seeds.—Several hemp oils, derived from the seeds of a variety of the *Cannabis sativa*, are to be met with in Chinese commerce. Specimens examined were evidently oils obtained from sesamum seeds, or those of the flax plant, both of which are confounded with the hemp plant proper.

Oil of Lilies.—This is cabbage oil, in which the axillary buds of the lily plant have been digested. The oil is recommended to be applied to vesicular eruptions. This very same, or a similar, preparation was once in great repute in Europe. In fact, to read the Chinese Pharmacopœia of to-day is like reading the old dispensatories of the 17th and 18th centuries.

Oil of Linseed.—The oil of the seeds of a linum is used as a lenitive, pectoral, anthelmintic, and alexipharmic remedy, and as an application to scabbed heads. This oil is not easily procurable.

Oil of Myrrh.—A reddish oil, having the smell of myrrh, is said by Loureiro to be used in Cochin China to dress ulcers. The Chinese are fond of making empyreumatic oils of various substances.

Oil of Pine.—A sort of empyreumatic oil, or coarse turpentine, procured by heating the wood or knots of several species of *Pinus*.

Oil of Peppermint.—A very good essential oil is distilled at Canton from the leaves of *Mentha piperita*, *M. crispa*, *M. hirsuta*, and *M. Canadensis*. It is put up in small bottles holding about a drachm. It sells at about 30*s.* a pound. The Chinese bottles are very poor, and stand a good deal in the way of elegant pharmaay. There are several glass manufactories in the (northeastern) province of Shantung and at Canton. The bottles are very small and brittle. The

Chinese pharmacists decorate their shops with ginger-jars and small blue-ware bottles. An oil is prepared at Canton from the pennyroyal plant. Mint is largely used as a remedy in belly-ache, but the dried leaves are generally used as an infusion.

Oil of Persimmons.—A glutinous oily extract is prepared from the fruit of the persimmon, a large, soft, orange-yellow fruit, very sweet, and often somewhat acrid. The fruit chosen for making this oil is that of the *Diospyros Embryopteris* or *Embryopteris glutinifera*, which grows plentifully in Hupeh province. The fruits are crushed to obtain the dark, resinous, thick juice, which makes a very capital varnish for the paper kittysols, or umbrellas of China. It is very cheap. An extract might be prepared from the fruit, as directed in the Indian Pharmacopœia, where it is prescribed as an astringent.

Oil of Poppy Seeds.—The opium poppy is largely grown in Sechuen, Yunnan and every province of China. It was introduced from Persia, a great source of drugs sent as tribute to China. Several splendid varieties of the flower are given in old lists of plants. Oil is obtained from the seeds, but I have never inspected a sample.

Oil of Ricinus Communis.—The castor oil plant grows to the height of more than ten feet, and forms a woody stem in Hupeh, but never survives the winter there. There is a red-stemmed variety and a white-stemmed plant, both of which are used to make the oil, which is used in cooking, and is sold for use as a lubricant on board foreign steamers. It is used medicinally, but not very frequently, as it does not purge Chinamen much, if at all. Croton oil is used by Chinese physicians in apoplexy, a common disease in China.

Oil of Roses.—This essential oil is used mainly as a scent for hair oil, so plentifully used by all Chinese women.

Oil of Sandal Wood.—The Chinese employ this thick, yellow, fragrant oil to daub over common fans, which are then sold as genuine sandal-wood fans.

Oil of Sesamum.—The black and white sesamum seeds are used to make an agreeable oil, much used by the higher classes in cooking food and making pastry. It is credited in the Chinese Pharmacopœia with ecbolic, emmenagogue, and anthelmintic properties. It answers all the properties of olive oil in the dispensary. It is the Til or Jinjili oil of India.

Oil of Sunflower.—This oil is known to the Chinese, but is not extensively used or known to be employed in pharmacy.

Oil of Spike.—A fine drying oil, is used in painting on porcelain and for varnishing. It is obtained from the Lavandula or an Ocymum. The Labiates do not abound in China, but they are held in great repute medicinally.

Oil of Tallow Seeds.—This oil, made from the albumen of the seeds of the tallow tree, or *Excœcaria sebifera*, is clear, but of a dark color. It is obtained, in the proportion of from 15 to 16 lbs. from one hundred weight of the berries, by grinding, steaming, and pressing the refuse which results from the preparation of the vegetable tallow. The oil is used to varnish umbrellas, to dress the hair, and to mix with the tallow to make the candles which form so effective a part of the religious ceremonies of Buddhism, the Ritualism of China. It has emetic and purgative properties. It is one of the few remedies given by the Chinese in cases of poisoning. Efforts are seldom made to rescue those suffering from opium-poisoning, a common mode of suicide in China.

It will be observed that the oils of Chinese commerce are almost exclusively taken from vegetable sources. This is one of the effects of Buddhism on their national life and economy. As Buddhism teaches that mercy and pity are noble sentiments, it forbids the destruction of animal life. The flesh of the cow and the sheep is never eaten by orthodox Chinese members of the Buddhist Church. Their wax is, therefore, vegetable, their tallow is vegetable, and their oils are vegetable. Their gelatines are made from sea-weed. Their daily diet is fish, oil and rice, with an occasional treat of pork.

There are many other vegetable substances, such as gourd seeds, the fruit of the *Aleurites triloba*, etc., from which the Chinese might prepare, or formerly have prepared, vegetable fats, in obedience to their strong religious teachings and highly economic tendencies. Mineral or rock oils are met with in Shansi, Sechuen, and Formosa, and in Corea. They are not used for illuminating purposes, as they are very inflammable, and are said to have been employed in warfare in the composition of a sort of Greek fire.—*Pharm. Journ.* [*Lond.*], *July* 25, 1874.

Varieties.

Dyspepsia and the Use of Pepsin.—The views of Dr. Schacht concerning digestion have beer confirmed by Professor Leube (the inventor of Leube's meat solution) of Jena, in a lecture just published on stomach diseases. He says: 1. No condition of the stomach has yet been observed in which pepsin is altogether absent. 2. The cause of indigestion is generally the absence of sufficient acid. 3. The action of pepsin in a solution of albumen resembles that of a ferment, and it will continue so to act without end, merely by the addition of more acid. 4. Alcoholic solutions, especially wine, on account of the tannin it contains, should be avoided as vehicles for pepsin. Finally, he recommends, in case of indigestion, a solution of chopped meat with water, adding a small proportion of pure muriatic acid, and some thickening. He finds such a solution very nourishing, and reports excellent results. These views and experiments are not novel, but exhibit the old doctrine as to digestion, and it appears to be the sound one. The secretion of the pancreas is now thought necessary to the digestlon of fatty substances; and where these are used to any extent—as in cod-liver oil—it would be best to take the new medicine pancreatin, which acts best with an alkali instead of an acid, or to use a little of the solution of the pancreas of freshly killed animals.—*Scientific American, August* 8, 1874.

Purification of Oxalic Acid.—When it is required to prepare large quantities of pure oxalic acid, Stolba recommends crystallization from hydrochloric acid. The oxalic acid to be purified is dissolved in a sufficient quantity of ten or fifteen per cent. boiling hydrochloric acid, the filtrate allowed to cool, the mother liquor drawn off, and the crystals washed with small quantities of water until the washings contain but very little hydrochloric acid. It is then only necessary to dissolve the moist crystals in pure water, and recrystallize the acid to obtain a perfectly pure product. It is essential in both cases to cool the hot solution rapidly, with constant stirring, to obtain small crystals, for on cooling slowly large crystals are formed, which may inclose some of the mother liquor. Large quantities of oxalic acid purified in this way will volatize completely if heated in a platinum crucible, without leaving the slightest residue. The mother liquor can be employed for making oxalate of ammonia, for on neutralizing with carbonate of ammonia most of the oxalate is precipitated, it being much less soluble in a solution of chloride of ammonia than in pure water.—*Journal of Applied Chemistry, August*, 1874.

Hay Fever.—Dr. T. C. Hoover, of Bellaire, Ohio, in the *American Journal of the Medical Sciences,* relates his successful treatment of this curious disease,

so baffling to the profession. The first patient was a lady who had fits of sneezing which lasted several hours. She also had a slight cough, and suffered much at times from difficulty of breathing. The doctor makes the following solution: Chlorate of potash 20 grains, sulphate of morphia 4 grains, pure water 2 fluidounces; mix. He used this solution by means of an atomizer. Relief was instantaneous. Continued application kept the patient well for five days. Then the sneezing returned, and the doctor ordered the use of the following solution through the same instrument: Bromide of potassium one drachm, water two fluidounces. This also stopped the paroxysms. She was ordered to use these preparations alternately, from six to ten inhalations three times daily, or about one-fourth of a drachm. She continued to improve till she discarded the spray, being entirely well. Several other cases were similarly cured, some in a short time.—*Scientific American, Aug. 8th.*

Absorption of Oxygen and Emission of Carbonic Acid by Leaves Kept in Darkness.—MM. Deherain and Moisson.—(1) The quantity of CO_2 emitted increases with rise of temperature (as previously observed). At 7° 100 grms. of tobacco leaves gave in ten hours 0·031 gr. of CO_2; they gave 0·193 gr. at 18°, and 1·132 gr. at 41°. The increase varies with the species. It is greater, *e. g.*, with *Pinus pinaster* than with *Ficus elastica.* (2) The quantity of CO_2 emitted is comparable to that furnished by cold-blooded animals. Thus, taking Regnault and Reiset's data, frogs give in respiration weights of CO_2 much less than leaves of tobacco, mustard or sorrel. At 15° the respiratory activity of silkworms is comparable to that of caducous leaves observed at 30°, but notably greater than they manifest at 15° to 20°. (3) Leaves kept in the dark absorb more O than they emit CO_2. For example, 30 grms. of leaves of *Pinus pinaster* absorbed in twenty-four hours 7·7 c.c. of O, and emitted only 3·9 c.c. of CO_2. The effect is most sensible at low temperatures. The branches of some fatty plants (*Agave, Opuntia*) sometimes absorb O without emitting CO_2. The O fixed is utilized for formation of vegetable acids. (4) Leaves continue to emit CO_2 in an atmosphere deprived of O. The resistance to asphyxia is various. Pine leaves continue four or five days to emit CO_2, while those of tobacco, sorrel, *Ficus elastica, Begonia,* soon wither. (5) Hypothesis on the physiological utility of the internal combustion produced in leaves. Obscure heat is peculiarly favorable to energy of respiration, and there seems to be, between rapidity of growth and energy of respiration, a connection which may be understood if we suppose that a certain quantity of heat must be called into action in order that the immediate principles may form. The internal combustion, shown by absorption of O and emission of CO_2, is the origin of a part of the heat necessary to elaboration of new immediate principles.—*Chem. News, June* 12, from *Compt. Rend.*

Jalap Biscuits.—M. Tambureau, a pharmacien residing at Guelma, Algeria, publishes the following directions for the preparation of biscuits containing the

resin of jalap, which he says are of good appearance, and have an agreeable taste:

Pure Jalap Resin	56 grams.
Powdered Sugar and Flour . . .	1000 "
Tincture of Vanilla	10 "
White of Egg	No. 20
Yolk of Egg	No. 40

Emulsify the resin with the egg yolks, add successively the sugar, tincture, and flour, and make a homogeneous paste, into which thoroughly incorporate the egg-whites previously beaten up. Divide the mass into 144 biscuits.—*Pharm. Journ. and Trans., June* 20, 1874.

Bleaching Bones and Ivory.—Bleaching is effected by exposure to the sun for three or four days in tanks filled with oil of turpentine. The objects must be supported on zinc stages at the height of a few millimetres above the bottom of the tanks.—*Chem. News, July* 17, 1874, from *Les Mondes.*

Davy's Artificial Ivory.—This substance, being made by the action of a mixture of sulphuric and nitric acids upon cotton and linen rags, must consist in part of nitro-cellulose, better known as gun cotton. Articles made of it may, therefore, prove dangerous under a variety of possible circumstances.—*Chem. News, July* 3, 1874.

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—The Board of Trustees, at a recent meeting, has resolved to make the abbreviation for graduate in pharmacy *Ph. G.*, and *Ph. M.* for master in pharmacy.

In the Massachusetts College of Pharmacy, the chairs of Materia Medica and Botany, and of Chemistry, became vacant by the resignation of Professors Tracy and Babcock. W. P. Bolles, M. D., and J. M. Merrick have been elected in their places.

Rhode Island Pharmaceutical Association.—The registered pharmacists of Rhode Island, after several preliminary meetings, finally organized, in Providence, on Saturday, July 25th, by the adoption of a Constitution and By-laws, and the election of the following officers: President, A. L. Calder, Providence; Vice-President, James H. Taylor, Newport; Secretary, Norman N. Mason, Providence; Treasurer, W. E. Anthony, Providence; Executive Committee, A. H. Field, F. J. Phillips and W. B Blanding, of Providence.

The President was authorized to appoint delegates to the next meeting of

the American Pharmaceutical Association, after which the Society adjourned until the second Monday in October.

New York College of Pharmacy.—The Board of Pharmacy has, in June and August, examined forty-nine persons, of whom thirty-one passed satisfactorily.

The New Jersey Pharmaceutical Association held its summer meeting at the Mansion House, Long Branch, August 12th; Mr. R. Rickey, of Trenton, presided, and Dr. E. P. Nichols, of Newark, acted as Secretary. The Committee on Legislation reported that the pharmacy bill had passed both Houses of the Legislature (see page 137 of March number), but after the departure of the Committee, was again called up, reconsidered and laid upon the table, and thus failed to become a law. An act of incorporation was passed, and approved on February 18th last; the consideration and adoption of this charter was laid over to the regular annual meeting in February next. Wm. Neergaard, M.D., of New York, was elected honorary member of the Association. After the election of members and the transaction of some routine business, the Association adjourned.

The Indianapolis Pharmaceutical Association was organized July 30th, by the election of the following officers: President, Eli Lilly; Vice Presidents, George W. Sloan and John B. Dell; Recording Secretary, Charles Dennis; Corresponding Secretary, Ross W. Perry; Executive Committee, Messrs. Bowen, Sloan and Jos. R. Perry.

According to the constitution, any druggist or apothecary, who has been established in business not less than four years, is eligible for membership, provided he had been in no way interested in the manufacture of any nostrum, or so called patent medicine, and has a good moral character and business integrity. The Association, we hope, will be represented at the next meeting of the American Pharmaceutical Association.

The Chicago College of Pharmacy has published, with the Eighth Annual Announcement of Lectures, the Constitution and By-laws, and a list of the contributions to its library and cabinet from October, 1871, to January, 1874. We are glad to observe that these contributions have been quite numerous and valuable.

The Pharmaceutical Society of Paris met July 1st, M. Planchon in the chair. A communication from D. Phollides, of Bucharest, was read, advocating the making of suppositories by hand; also a paper by M. Carles, of Bordeaux, on reduced iron, and on the employment of a standardized solution of iodine to ascertain its purity. M. Bussy has determined the amount of metallic iron by dissolving the reduced iron in sulphuric acid, and measuring the resulting hydrogen.

A new process for the preparation of crystallized digitalin was described in

a paper by M. Nativelle. A note on the falsification of dragon's blood was communicated by M. Brétet; investigation son the density of cholesterin, by M. Méhu; a process for the preparation of cinchona wine, and the estimation of the alkaloids contained in it, by Ferd. Vigier.

M. Boudet read his report, which is intended as the preface of the International Pharmacopœia, which was freely discussed, after which the Society elected M. Méhu as delegate to the International Pharmaceutical Congress at St. Petersburg.

Editorial Department.

The Next Meeting of the American Pharmaceutical Association, to judge from the accounts received by us from different sections of the country, will not fall behind the preceding ones, either in point of numbers or in the interest attached to it through the reading of papers, the discussions and the exhibition of pharmaceutical objects. The meetings held during the last few years have abundantly proven, that it is not absolutely necessary that business objects should call the members into those sections of the country in which the meetings are being held; a fair atttendance may usually be expected from those having the good of the profession at heart, and the meetings occurring at a time, when the majority of members are not confined to their homes by the pressure of business, the certainty of meeting many friends and acquaintances of former years, who are actuated by similar motives, will always surround these annual gatherings with attractions and enjoyments which are not easily, if at all, met with at places of recreation, where the business man, after a season of toil, seeks a short period of quiet and the restoration of mental and bodily vigor. During the last few years, death has forevever sealed the lips of several prominent members, who rarely missed the opportunity of meeting their brother pharmacists in friendly counsel, and as time rolls on, others will follow them to their last resting places. But it is to be expected that their places will be filled by others equally animated by the desire of assisting in the progress of the profession of their choice.

The arrangements made for the next meeting have been noticed in detail on page 395 of our last number, and we merely have to mention, in addition thereto, that the Chesapeake and Ohio R.R. will sell tickets to and from Cincinnati at $25 from Richmond, Va., and at $26 from Washington, D. C., for the round trip. It is contemplated that a party of the visiting members from the Atlantic States will return by the same line, and it is expected that a sufficient reduction of fare will be secured to induce many to chose that route, which offers many attractions and passes through a country replete with historical interest.

Numerous applications for space in the exhibition room have been received by the local Secretary, and it is to be hoped that all goods will arrive in due

time, so that the exposition may be fully opened before the organization of the meeting.

Centennial of Chemistry.—On the first of August, 1774, Joseph Priestley discovered *dephlogisticated air*, which afterwards received the name of oxygen, and on the same day, in 1874, a number of chemists assembled at his grave in Northumberland, Pa, and at his former home in Birmingham, England, to do homage to the memory of a man who, during his entire lifetime, waged war against ignorance and battled for what he considered to be right and truth. His chemical investigations were mostly confined to the discovery of most of the important gases, and although, from his limited knowledge of general chemical laws, his observations were, in his own hands, not productive of the important theoretical results, yet they formed the basis upon which the superstructure of modern chemistry has been erected, and in this light the birth of chemistry may well be dated from the discovery of oxygen, an honor which Priestley shares with his celebrated cotemporary, Scheele, then an apothecary's assistant at Upsala, Sweden, but whose investigations were not published until 1777.

On the evening of July 30, a number of chemists from different parts of the United States and Canada reached the quiet borough of Northumberland, and more came the following morning, until about seventy five had arrived. The town is beautifully situated at the conflux of the two branches of the Susquehanna river and at the foot of the Montour range of mountains. During the celebration, business was almost completely suspended, music was freely discoursed by an amateur brass band, and the visitors met with a hearty reception on the part of the citizens, many of whom opened their houses for the hospitable entertainment of the strangers.

The meetings were held in the spacious hall of the school-house, and were largely attended by the inhabitants of Northumberland and the neighboring towns. The first meeting was held Friday, July 31, at 9 o'clock, A. M., and was called to order by Professor E. M. Horsford, who nominated as temporary chairman, Prof. H. C. Bolton, of Columbia College, who had first suggested this celebration. After prayer had been offered by Rev. Pynchion, a nominating committee was appointed and the meeting finally organized by the election of Prof. C. F. Chandler, of New York, President; Prof. R. A. Leeds, Secretary; and Prof. W. H. Chandler, of Bethlehem, Pa., Treasurer. Among the Vice-Presidents elect, was Miss Rachel L. Bodley, Professor of Chemistry in the Woman's Medical College of Philadelphia, who had first suggested to hold this meeting in the village containing the last home and grave of Priestley; the lady was not present, but, by previously made arrangements, was absent on a botanical tour to Colorado. Colonel David Taggart, on behalf of the citizens of Northumberland, in a brief but happy speech, extended a sincere welcome to the visitors, to which the President made a short reply. A committee consisting of Messrs. Frazer, Sharpless and Wheeler, was appointed to communicate with the centennial meeting at Birmingham, and on motion of Professor J. L. Smith, another committee, consisting of Messrs. Smith, Youmans and Joy, to

represent in spirit the American chemists at the unveiling of Priestley's statue in England. The following telegram was sent to England:

"Northumberland, Penn., July 31, 1874.

"The brother chemists at the grave to their brothers at the home of Priestley, send greeting on this centennial anniversary of the birth of Chemistry."

Near the close of the session, the following dispatch was received and read:

"*The American Chemists assembled at Northumberland, Penn.:*

"Our marble statue, representing Priestley discovering oxygen, will be unveiled to-morrow, presented by the subscribers, through Prof. Huxley, to the town, and accepted by the Mayor. We greet you as colleagues in honoring the memory of a great and good man.

"The Priestley Memorial Committee, Birmingham, Eng."

Prof. Smith advocated a resolution providing for a meeting of chemists in Philadelphia during the year 1876, and for the appointment of a committee to confer with the Centennial Commission with the view of adopting measures providing for the visit of the European chemists to this country, on the occasion of the contemplated meeting. The Committee was announced as follows: Prof. J. L. Smith, T. Sterry Hunt, C. A. Joy, J. W. Mallet, R. A. Leeds, E. M. Horsford, H. C. Bolton, B. Silliman and W. Gibbs.

An excellent address upon the life and labors of Dr. Joseph Priestley was delivered by Prof. H. H. Croft, of Toronto, after which Prof. Horsford exhibited and read extracts from many letters written by the philosopher to George Thatcher, member of Congress, and which are in the possession of the Massachusetts Historical Society; also a copy of the Proceedings of the Columbia Chemical Society, of Philadelphia, from the beginning of the present century, with which Priestley had been in correspondence. Afterwards the meeting adjourned, and the company proceeded to the mansion built by Dr. Priestley on the banks of the North Branch of the Susquehanna, and overlooking for some distance the picturesque valley of that river. With the exception of the observatory, which has been removed, the building stands pretty much with the same arrangements as at the close of last century; adjoining it is an outhouse which was used by the great philosopher as a laboratory, the brick furnace being partly in ruins.

At the residence of Mr. Jos. Bird, on Market street, was displayed the "Loan Cabinet," containing the works, some manuscripts and many apparatus used by Dr. Priestley, and remaining in the possession of the family; also other curious apparatus, engravings, &c., which had been loaned for the occasion from different parts of the country.

Before the second session several photographs of the visitors and local committee were taken in front of the "Loan Cabinet;" and subsequently, at the school house, an able address was given by Prof. T. S. Hunt, reviewing, in a lucid and thorough manner, the century's progress in theoretical chemistry.

The following dispatch to Birmingham was read:

"Welcome dispatch received. Profs. J. L. Smith, Youmans and Joy were

appointed a committee to represent us in spirit at the unveiling of Priestley's statue."

A report of the Finance Committee and the appointment of a Committee of Five consisting of Profs. Bolton, Smith, Silliman, Horsford and Hunt, to co-operate with the American Association for the Advancement of Science in establishing the chemical section on a firmer basis, closed the labors of the second session.

Prof. Jos. Henry, of Washington, had consented to deliver an address at Priestley's grave; but, he being unable to attend, Prof. H. Coppee, of Bethlehem, Pa., stepped into his place, and at 6½ P. M., in the presence of a large assemblage, delivered an eloquent discourse upon the aims and objects of the life of him whose mortal remains rested near, on the hillside overlooking a beautiful panorama of the narrow valley of the Susquehanna.

At 8 o'clock in the evening, a review of the century's progress was given by Prof. Smith; and on "Oxygen Day," August 1st, an essay on American Contributions to Chemistry, by Prof. Silliman. Both addresses were full of interest, but the design was rather on too extensive a basis, and many important points could, therefore, receive but a passing notice, or had to be omitted altogether.

After a report of the Finance Committee, the presentation of the autographs of the visitors to the descendants of Jos. Priestley, and the adoption of resolutions of thanks to the citizens of Northumberland, a motion to adjourn was unanimously amended "to meet Aug. 1, 1974," and an invitation extended to all present to be in attendance.

It deserves to be mentioned that the chairman of the Local Committee was Joseph Priestley, M. D., a great-grandson of the philosopher, the centennial anniversary of whose important discovery was thus celebrated.

The Georgia Examining Board to regulate the licensing of physicians and druggists, which has been in existence since 1824, held a meeting at Atlanta, July 14, and registered twenty three persons as druggists and apothecaries and one only as a pharmacist. We obtain this information from the *Southern Medical Record* for July, where, however, we find no explanation of the legal standing of the two classes mentioned. Mr J. M. Clark, of Milledgeville, has been the pharmaceutical member of this State Board for a number of years past.

The Percentage Business, by which a physician obtains a certain proportion of the charges for prescriptions, has been repeatedly denounced as a species of dishonesty, and as a disgrace to the medical and pharmaceutical professions. It is not often that we find it alluded to in medical journals, and, therefore, we insert here with pleasure a portion of the timely remarks of the *Medical and Surgical Reporter*, in its issue of August 8th:

"Some definite and positive action ought to be taken by the medical societies of this country to discountenance and discourage the custom of receiving percentages from druggists on prescriptions sent them. Such action 'is not and cannot come to good.' It is a hardship to the druggist, because such percentages, in the nature of a commission on sales, do not enter into the

legitimate estimates of the retail drug business. It is a temptation to the physician to prescribe more frequently than he otherwise would, and thus defraud the patient by forcing him to make unnecessary purchases. It is a base advantage to take of a man of limited means, for he not only has to buy needless medicines, but also to pay more for them than he otherwise would.

"We have been told that medical societies will not take any steps in this matter, because, if not the majority, many very influential members practice this discreditable custom, and are bound to sustain it, or at least to shield it. Then let the Legislatures of the States enact laws forbidding it. This has been done in some parts of Europe, and severe penalties are incurred by those who violate these statutes."

The highwayman, who boldly steps up to his intended victim demanding his purse, is virtuous in comparison to those, who, sneak-like, rob the trusting customer, under the pretense of necessity for prescribing, and of fair and honest charges for the prescribed medicines. In our opinion, the apothecary who pays this filthy spoil is morally as culpable as the physician who exacts the booty; one acts as the agent for his master, and both being directly benefitted, it matters little which one is the decoy in any particular case. But what strikes us as deserving af particular attention in the above quotation is the charge against medical societies and many of their influential members. We hope that, although this corrupt practice may not be uncommon, it has no gained such dimensions as to be beyond the reach of the medical and pharmaceutical societies, and we must say that during a period of a quarter of a century we have had cognizance of but few cases of such collusion and extortion. Though laws bearing on this fraud can do no harm, and may, to some extent, serve to check it, yet we expect far better results from the united action of the societies of both professions, from an inculcation of the principles of professional honesty and fair dealing, and from a strict adherence to the adopted codes of ethics.

The Position of Colleges of Pharmacy towards Patent Medicines and Adulterations has been defined by Mr. Samuel M. Colcord, President of the Massachusetts College of Pharmacy, in a speech made to the Massachusetts Medical Society at the annual meeting held in June last. We quote from the *Boston Medical and Surgical Journal* the passages referring to the above subject, and commend them to the attention of our readers:

"We are endeavoring to raise pharmacy to the dignity of a profession. We believe it to be for the benefit of your profession and the public that this should be done. We believe that the drug business requires it; that great changes have taken place in it, of late years, but not the best changes. We believe that something better ought to greet the view of a customer upon entering a modern drug store than a marble monument suggestive of Mount Auburn, although filled with delicious beverages, or a case of Humphrey's homœopathic specifics, the sale of which is based upon the theory of *no cure no harm*. But the imposing feature of the store is *proprietary medicines*, in which form more than two-thirds of all the medicine in this country is dispensed. A demand has been made for them, and commercial apothecaries supply the demand. I have never had time to read the list of all the diseases they are said to cure, and I know of no disease they do not claim to cure. Still, I

never could quite understand the necessity of having so many kinds, as I have been positively informed by the discoverer of the original pain-killer that it was the best medicine ever discovered for every disease except worms, and as good for worms as anything else.

"Mr. President, I have stated that more than two-thirds of all the medicine sold in this country is in the shape of patent medicine or nostrums. You may infer, if you please, that this state of things exists from that universal law of *demand* and *supply*. I also stated that your Society or ours can do very little toward restraining or controlling traffic in this form; the great bulk of this business has been developed outside of, if not in opposition to, the drug business. The demand for nostrums is created by direct appeals or advertisements directed to physicians and the public, I may say in spite of apothecaries aid or influence, although all apothecaries supply the demands upon them for these articles. And so great is the demand for them, that one proprietor, in answer to some inquiries I made of him a short time since, wrote to me that he paid the United States government $120,000 per annum for stamps alone. If you will multiply this amount by 25, it will give you the amount of his sales, retail value $3,000,000; and if you divide this amount by 3, it might, and probably does, give the yearly income of $1,000,000, which is more than all the profit on drugs sold in this city in the regular way.

"Now, the point I make is this: educate as many honest young men as you will, and let them know enough to be able to get the degree of graduate in pharmacy from the Massachusetts College of Pharmacy, and no one of them ever will, or can, become a successful nostrum proprietor. And this is the policy we, as a college, are pursuing; we attend to our own business, do our work faithfully, and educate our young men not only to do the same, but to look after the men and medicines that are not up to the standard quality, for our own and our customer's protection and benefit, and do not propose for the present to keep houses of reformation for our neighbors or do police duty."

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Nouveaux Eléments de Pharmacie. Par A. Andouard, Pharmacien, Professeur de Chimie a l'Ecole de Médecine et de Pharmacie de Nantes. Paris: J. B. Baillière et Fils, 1874. 1 vol. in 8vo de xxiv—884 pages avec 120 figures intercalées dans le texte. 14 francs.

New Elements of Pharmacy. By A. Andouard, Pharmacist and Professor of Chemistry, &c.

The work is divided into twenty-eight chapters, the first of which treats of the pharmaceutical manipulations, which, though occupying only forty-three pages, are well described, and a number of apparatus and simple contrivances are mentioned and illustrated which are but little known in this country. From our standpoint, we find the paragraph on percolation, which is treated under lixiviation, too short; but it is well to remember that this process has nowhere received the attention and patient investigation which has been accorded to it on this side of the Atlantic.

The following five chapters treat of the mineral medicaments, namely, elements, neutral bodies (water and nitrous oxide), mineral acids, alkalies and metallic oxides, salts, which latter are arranged according to their acids. The

organic medicaments are considered upon one hundred and sixty pages, in four chapters, as organic acids, vegetable alkalies, salts and neutral bodies.

Part II of the work is entitled "Medicaments of complex and often little definite chemical composition." It opens with well-written remarks upon the choice, collection, drying and conservation of drugs, which are followed by the galenical preparations, grouped together as follows: Simple (animal and vegetable) and compound powders; pulps; juices (animal juices - animal fats, wax, milk, honey; and vegetable juices, comprising the various vegetable exudations, fats and volatile oils); species (espèces), a form of preparations but little used in this country; medicaments prepared with water, comprising infusions, decoctions, mucilages, distilled waters, aqueous extracts, syrups, honeys, electuaries, pastes, conserves, jellies, troches, draughts, emulsions, gargles, injections, collyria, lotions, baths, cataplasms, &c.; medicaments prepared with alcohol (spirits, tinctures and alcoholic extracts); medicaments prepared with glycerin, ether, fats, essences, wine, vinegar and beer; pills; capsules; liniments; fumigations.

Although in some instances objection may be made as to the correctness of the classification adopted by the author, yet it will be found that the arrangement, once understood, is quite convenient, so that the work may be readily consulted with convenience, which is increased by a good index.

We regard the work as a good exposition of pharmacy as practiced in France, and find its scientific information up to the time of publication. It will prove of great value to those of our readers who desire to familiarize themselves with French pharmacy, or who are in localities where they have occasion to put up the prescriptions of French physicians, since it contains not only the preparations officinal in the Paris Codex, but likewise those unofficinal ones which are used to some extent in France.

The book is handsomely printed, upon good paper, and is illustrated with 120 well-executed cuts.

The Hot Springs as they are. A history and guide. By Charles Cutter. Little Rock, Ark: W. H. Windsor, Printer, 1874. 8vo, pp. 88.

This pamphlet aims to show the advantages of the Hot Springs of Arkansas, and to give such information as will be interesting and valuable to the tourist, as well as to the invalid visiting the springs for the recovery of his health.

The Student's Guide to Materia Medica in Accordance with the latest issue of the British Pharmacopœia. By John C. Thorogood, M. D., Lond., Lecturer on Materia Medica at the Middlesex Hospital. Philadelphia: Lindsay & Blakiston, 1874. f. cap. 8vo, pp. 318.

Intended as a supplement to the Pharmacopœia in the student's hand, the object of the little volume is mainly to give an account of the chemical composition of medicines, and of their effects and uses, and to explain briefly the chemistry of the various processes and of the reactions which occur in applying tests. The work is divided into two parts, Part I being entitled "Inorganic

Materia Medica," and comprising the various elements and their inorganic compounds, together with ethylic and amylic alcohols, their derivatives, creasote and carbolic acid; the other organic chemicals are treated in connection with the crude drugs from which they are derived.

Part II, Organic Materia Medica, comprising about one-half of the work, is arranged according to De Candolle's botanical system, and closes with the drugs derived from the animal kingdom, similarly arranged in natural classes. Descriptions of drugs are, as a rule, not given, the author referring to the characteristics as mentioned in the British Pharmacopœia, which authority is likewise adhered to in the galenical preparations. The chemistry and medicinal properties and uses are clearly described, and will be found useful also to the American student, although for him the value of this guide is seriously affected by the total neglect of the drugs and preparations peculiar to the United States Pharmacopœia. As a guide to the Materia Medica of the British Pharmacopœia, and if used in connection with the latter, the work fulfils its object.

Nomenclature of Diseases, prepared for the use of the Naval Officers of the United States Marine-Hospital Service, by the Supervising Surgeon, John M. Woodworth, M. D. Washington: Government Printing Office, 1874. 8vo, pp. 210.

This is the classification and English-Latin terminology of the provisional nomenclature of the Royal College of Physicians, of London, which has been adopted by the U. S. Marine-Hospital Bureau as the nosological system to be observed by medical officers of the service in their reports and communications, and is also intended for the guidance and information of others not concerned with the professional details of the service.

Circulars of Information of the Bureau of Education, No. 1. 1874. Washington: Government Printing Office, 1874. 8vo, pp. 77.

The pamphlet contains the Proceedings of the Department of the Superintendence of the National Teachers' Association, a meeting of which was held at Washington, in January last. As one of the subjects considered was the manner in which education shall be represented at the Centennial Exposition, in 1876, this circular claims the prompt attention of all educational institutions in the United States.

Cincinnati Industrial Exposition; Rules and Premium List of the Fifth Exposition. 1874. 8vo, pp. 54.

This Exposition commences September 2d and closes October 3d.

Exhibition of the Franklin Institute of the State of Pennsylvania for the Promotion of the Mechanic Arts. Rules and Regulations with address of the Board of Managers, 1874.

This Exposition will be open from October 6th until October 31st.

THE

AMERICAN JOURNAL OF PHARMACY.

OCTOBER, 1874.

THE TWENTY-SECOND ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The meeting was held at Liederkranz Hall, Market near Second street, in the city of Louisville, Ky.; it opened on Tuesday afternoon, September 8th, and adjourned about noon on Friday, September 11th. Both the meeting and exhibition room, the latter being the lower concert room of the Hall, were very convenient and well adapted for the purposes of the meeting.

First Session—Tuesday Afternoon.

At the appointed time, President John F. Hancock, of Baltimore, called the meeting to order, and finding all the members of the Executive Committee absent, except the Secretary, appointed Mr. George W. Kennedy, of Pottsville, Pa., to act for this Committee. A Committee on Credentials was appointed, consisting of Messrs. Paul Balluff, of New York, Jos. Roberts of Baltimore, and Wm. Saunders, of London, Canada; the following Societies were reported to be duly represented by delegates: the Massachusetts, New York, Philadelphia, Maryland, National (of Washington, D. C.), Cincinnati, Louisville, Tennessee, Chicago, and Ontario Colleges of Pharmacy; the New Hampshire, New Jersey, Newark, Washington, Richmond, Lexington, St. Clair, and Indianapolis Pharmaceutical Associations, the Literary and Scientific Society of the German Apothecaries of New York, and the Alumni Associations of the Massachusetts, New York and Philadelphia Colleges of Pharmacy. The credentials of the delegation of the St. Louis College of Pharmacy, and of the Alumni Association of the Cincinnati College, were received at a

subsequent session; none of the accredited delegates of the Newark Pharmaceutical Association were present.

A communication was read from Mr. E. A. Maginness, Secretary and Superintendant of the Louisville Industrial Exposition, inviting the members to visit the exposition free of charge, admission to be gained upon showing their badges. The invitation was accepted with thanks, and the Secretary directed to properly acknowledge the same.

Invitations to take seats on the floor were extended to Professor J. Lawrence Smith, the professors of the Medical Colleges and the Louisville College of Pharmacy, and the medical profession of Louisville and vicinity.

At the first call of the roll, 60 members answered to their names. The Executive Committee reported the names of 68 applicants for membership, who were duly elected, Messrs. R. V. Mattison and G. E. Cook acting as tellers.

Committee reports being called for, the following were handed in: Report of the Executive Committee with the report of the Permanent Secretary, of the Committees on the Drug Market, on Papers and Queries, on Unofficinal Formulas, on Adulterations and Sophistications, on Legislation and on Photographic Album.

The delegations of the Colleges and Societies named above, appointed each one of their number to serve on the Committee to Nominate Officers for the ensuing year, as follows: S. M. Colcord, M. L. M. Peixotto, W. H. Pile, J. F. Moore, J. A. Milburn, J. D. Wells, E. Scheffer, B. Lillard, A. E. Ebert, Wm. Saunders, C. A. Tufts, J. Fehr, W. P. Baldus, J. W. Blunt, J. J. Frost, A. G. F. Streit, G. W. Sloan, Ch. Eimer, C. P. Orne, Wm. Wright, Jr., and G. W. Kennedy. The Nominating Committee was completed by the chair appointing in addition the following members from the Association at large: Messrs. W. F. Nick, Erie, Pa.; A. S. Lane, Rochester, N. Y.; C. A Heinitsh, Lancaster, Pa.; A. S. White, Mount Holly, N. J.; and Gust. Mallinckrodt, St. Louis, Mo.

The reports of the Executive Committee and of the Permanent Secretary were read, the former of which recorded the decease during the past year of the following members: Professor Wm. Procter, Jr., Charles Ellis, H. K. Bowman, and Robert Platzer of Philadelphia; N. C. Pettis of North Adams, Mass.; J. C. R. Fulton, of Brooklyn; Michael S. McConville, of Worcester, Mass.; John Scott, of Cincinnati; Chas. P. Johnston and Chas. F. Uhl, of Memphis, Tenn.;

Jas. F. Aspinwall, of New York; Fred. A. Keffer, of New Orleans, and Darius B. Kidder, of Boston.

The Permanent Secretary reported that the action of the Association at the Richmond meeting, aiming at a uniformity in unofficinal elixirs, had been received with almost universal favor. Under date of July 13, an invitation was extended, in compliance with resolutions passed at St. Louis, to the Fourth International Pharmaceutical Congress, held at St. Petersburg, Russia, August 13th to 18th, to call the meeting of the Fifth Congress in Philadelphia in 1876, or if this should be deemed inexpedient, the invitation was extended to all Societies represented at St. Petersburg, and to all pharmacists to meet the American Pharmaceutical Association at its 24th annual meeting, to be held in Philadelphia during the International Industrial Exposition in 1876. Attention was also drawn to the questions that were to come up for discussion at St. Petersburg (see *Amer. Jour. Pharm.*, 1874, April, p. 205) and it was urged that this Association participate in the preparation of an International Pharmacopœia, should the Congress create an International Commission with this project in view. It was likewise proposed, that whenever possible, the likeness of one or more of the deceased members should be published with the Proceedings. The incidental expenses of the Secretary during the past year, exclusive of traveling expenses and journals for the use of the Reporter on the Progress of Pharmacy were $352.46, the principal items being for porterage and freight $133.10; postage stamps, $153: packing boxes, etc., $27.60; circulars, $17.50, and fire insurance, $17.50.

The following committee was appointed to examine and report on the specimens on exhibition: James T. King, Middletown, N. Y.; T. N. Jamieson, Chicago; A. R. Bayley, Cambridgeport, Mass.; Clay W. Holmes, Wilkesbarre, Pa., and Vincent Davis, Louisville.

President Hancock read the Annual Address, a very valuable document, which was attentively listened to, and, together with the Secretary's report, referred to a committee of three, to report on such portions of the two documents requiring the action of the Association. The committee consisted of Messrs. J. F. Moore, William Neergaard and A. W. Miller. A unanimous vote of thanks was tendered to the President for his able address, after which the Association adjourned until 9 o'clock the following morning.

Second Session—Wednesday Morning.

The reading and approval of the minutes of the first session was followed by the report of the Nominating Committee. The following officers and standing committees were nominated for the ensuing year:

President, C. Lewis Diehl, of Louisville, Ky.

Vice-Presidents, Joseph Roberts, of Baltimore.
William T. Wenzell, of San Francisco.
Augustus R. Bayley, of Cambridgeport, Mass.

Treasurer, Charles A. Tufts, of Dover, New Hampshire.

Permanent Secretary, John M. Maisch, of Philadelphia.

Reporter on Progress of Pharmacy, C. L. Diehl.

Executive Committee, Geo. W. Kennedy, of Pottsville, Pa., *Chairman;* William McIntyre, Philadelphia, Pa.; J. L. Lemberger, Lebanon, Pa.; Charles A. Heinitsh, Lancaster, Pa.

Committee on Drug Market, William Wright, Jr., New York; John Muth, Baltimore; Emil Scheffer, Louisville; William F. Horton, Boston; John Calvert, San Francisco.

Committee on Papers and Queries, William Saunders, London, Ontario; John F. Judge, Cincinnati; W. S. Thompson, Washington, D. C.

Business Committee, E. H. Sargent, Chicago: T. Roberts Baker, Richmond, Va.; William H. Egle, Harrisburg, Pa.

The Committee also brought in nominations for the following special committees:

Committee on Adulteration and Sophistication, Adolph W. Miller, *Chairman,* Philadelphia, Pa.; M. L. M. Peixotto, New York; J. R Mercein, Jersey City.

Committee on Legislation, John M. Maisch, Philadelphia; T. L. A. Greve, Cincinnati; G. J. Luhn, Charleston, S. C.; A. G. F. Streit, Belleville, Ill.; S. S. Garrigues, East Saginaw, Mich.

Committee on Liquor Dealers' License of Apothecaries, F. Hassencamp, Baltimore; W. T. Baldus, Washington, D. C.; John Colgan, Louisville; E. C. Jones, Philadelphia; J. S. Robinson, Memphis.

Committee on Infringement of Stamp Tax, Oscar Oldberg, Washington, D. C., *Chairman;* J. Faris Moore, Baltimore; Herman Vogelbach, Philadelphia, Pa.

Committee on Photographic Album, P. W. Bedford, New York, *Chairman;* J. S. Kirkbride, St. Louis; John A. Milburn, Washing-

ton, D. C.; George H. Schaefer, Fort Madison, Iowa; Benjamin Lillard, Nashville, Tenn.

Committee on Ebert Prize, Charles Bullock, *Chairman;* Wilson H. Pile, John M. Maisch, Philadelphia.

The Nominating Committee likewise reported the completion of the Permanent Committee on the Pharmacopœia, as follows:

George F. H. Markoe, Boston; P. Wendover Bedford, New York; Alfred B. Taylor, Philadelphia; J. Faris Moore, Baltimore; Albert E. Ebert, Chicago; William H. Crawford, St. Louis; J. C. Wharton, Nashville; C. Lewis Diehl, Louisville; William S. Thompson, Washington, D. C.; John F. Judge, Cincinnati; C. H. Dalrymple, Morristown, N. J.; Charles A. Tufts, Dover, N. H.; William Saunders, London, Ontario; Paul Balluff, New York.

The report was, on motion, accepted, and the President directed to cast an affirmative ballot in favor of the nominees, Messrs. W. S. Thompson and J. A. Webb acting as tellers. Professor C. L. Diehl, the newly-elected President, was conducted to the chair by Messrs. W. J. M. Gordon and J. F. Moore, and, before taking his seat, made a few remarks, expressive of his thanks for the honor conferred upon him. The Association passed a vote of thanks to the retiring President and officers for the able manner in which they had discharged their duties.

Mr. F. H. Butler, of Lowell, Mass., was elected a member, after which the Treasurer read his report, showing that, at the beginning of the meeting, there had been in the Treasurer's hands the sum of $918.22. The report was accepted, and, together with the Treasurer's books, referred to an Auditing Committee, consisting of Messrs. P. Balluff, of New York; G. H. Cary, of Louisville, and G. W. Sloan, of Indianapolis. The committee reported, at a subsequent session, that the accounts had been found correct, and the Treasurer's books were neatly and accurately kept.

The report of the Committee on the Drug Market was read by the Chairman, Prof. P. W. Bedford, and referred for publication.

The Secretary read the report of the Committee on Adulterations and Sophistications; in it, the Chairman, Mr. Charles Rice, of New York, suggests to aim at the establishment of a central bureau for the detection of adulterations, in order to secure to our people some of the benefits which England derives from its "Adulteration Act." The plan proposed for the present is that the committee should espec-

ially direct their attention to some prominent staple articles, obtaining samples through confidential and discreet agents from each State, and carefully examining or analyzing such samples, and preserving them with the view of establishing a museum, having all the facilities and appliances for conducting the necessary experiments. At present, the labors of the committee are mainly limited to a recapitulation of adulterations reported in the journals, and to the examination of such specimens which they may accidentally encounter.

The report of the Committee on Legislation, read by the Chairman, J. M. Maisch, informed of the efforts made in several States to legally regulate the practice of pharmacy. Such laws were passed in the States of Kentucky and Missouri, and recently revived in Alabama and Georgia; the report also referred to some United States and State laws, more or less affecting the business of the pharmacist and druggist.

Dr. J. M. Woodworth, Supervising Surgeon of the U. S. Marine Hospital Service, sent, as a present to the Association, one copy each of the "Annual Report of the Supervising Surgeon, for the Fiscal Year 1873," and "Nomenclature of Diseases." The works were accepted with thanks.

The American Pork Packers' and Produce Dealers' Association, meeting in Louisville simultaneously with the Pharmaceutical Association, on motion of the Business Committee, an invitation was extended to the former to visit the exposition of specimens and objects of pharmaceutical interest. This invitation was accepted, and on the following day the invited Association in a body visited the spacious exhibition hall, and was evidently much pleased with the tasteful display and the numerous articles of interest to the people at large.

The following papers were read: On American extract of licorice, by Dr. A. W. Miller; On oleate of mercury, by Ch. Rice; On extract of quassia, by J. S. Whall, and On suppositories, by G. W. Kennedy. The latter paper occasioned considerable discussion, in which many members participated, relating their experience with the making of suppositories by hand and by moulds. It appears that many pharmacists discard the use of the moulds altogether, while others obtain these preparations equally uniform in composition by using moulds, which have the additional advantage of imparting a better finish to the suppositories, and of a considerable saving of time when larger quantities are made.

The Association then adjourned into the exhibition hall, where, in charge of the Committee on Specimens, the various articles of preparations, drugs, plants, apparatus, &c., were thoroughly examined and their merits discussed in an informal manner; after which an adjournment was had until 3 o'clock P. M.

Third Session—Wednesday Afternoon.

This session was mainly devoted to the reading and discussion of essays in answer to the queries propounded at the Richmond meeting. The essays, of which we propose to give short abstracts in a future number, were on the following subjects: On hypodermic solutions of quinia, by A. P. Sharp, of Baltimore; On the medicinal value of rhubarb after exhaustion with water, by C. A. Heinitsh, of Lancaster, Pa.; On the active constituents of bitter orange-peel, by Prof. R. H. Stabler, of Alexandria, Va.; On cosmolin, by Jos. L. Lemberger, of Lebanon, Pa.; On dilute phosphoric acid, prepared from the glacial acid, by Louis Dohme, of Baltimore; On the preference shown to graduates in pharmacy, as compared with non-graduates, by P. Balluff, of New York; On the salaries of drug clerks, by H. N. Rittenhouse, of Philadelphia; On statistics of the drug trade, by B. F. Stacey, of Charlestown, Mass.; On commercial iron by hydrogen, by J. L. A. Creuse, of New York; On the purity of commercial santonin, by Dr. Fr. Hoffmann, of New York.

The discussion was somewhat animated on the subject of cosmolin while its value as a therapeutical agent for external use, and as a substitute for fats in ointments, was acknowledged, it was stated that it must be regarded as a mixture of paraffins of low fusing point, and that it may be produced from the so-called paraffin oils, the residue of petroleum distillations, by the process, or a modification of it, as suggested by Dr. A. W. Miller (see *Amer. Journ. Pharm.*, 1874, Jan., p. 3, 4), in which case it can be cheaply obtained by the pharmacist.

Santonin, though usually pure, was stated to have been met with in the Western markets adulterated with a considerable portion of boric acid.

For the conversion of glacial into the dilute tribasic phosphoric acid, the employment of nitric acid does not appear to be essential, a certain degree of heat affecting the change. Mr. Dohme will continue his researches on this subject.

The Committee on the President's Address and the Secretary's

Report made a report, which was accepted and made the order of business immediately after the opening of the fourth session.

After some remarks by Mr. J. F. Hancock on prescription vials, the Association adjourned until the following morning, at 9 o'clock.

Fourth Session—Thursday Morning.

After the reading and approval of the minutes of the third session, the report on the President's address and Secretary's report was taken up, and, after discussion, the following resolutions were adopted:

Resolved, That the officers of this Association be empowered to enter into correspondence with any international body that may have been created, for the purpose of attempting a unification of the plans upon which the different Pharmacopœias have been constructed.

Resolved, That the Executive Committee, with the approval of the President and Treasurer, be empowered to publish annually, with the Proceedings, the likeness of one or more of our departed members, and that for the forthcoming volume our much lamented friend, Prof. William Procter, Jr., be selected.

Resolved, That a committee of three be appointed by the President to report at our next meeting upon the feasibility of the publication of a table of maximum doses, and to devise a plan by means of which physicians can distinctly indicate unusually large doses in their prescriptions.

Resolved, That a committee of three be appointed by the President to report at our next annual meeting upon the suggestion of our late President in reference to furnishing copies of papers read at our meetings to pharmaceutical journals in advance of their publication in the Proceedings.

Resolved, That the members of this Association are earnestly requested to call the attention of their neighboring pharmacists to the aims and objects of the Association, and use strenuous efforts to induce them to become members.

In compliance with these resolutions, the President appointed Messrs. Wm. Saunders, of London, Ont., Louis Dohme, of Baltimore, and W. H. Pile, the Committee on Maximum Doses, and Messrs. A. W. Miller, of Philadelphia, J. F. Hancock, of Baltimore, and Ottmar Eberbach, of Ann Arbor, Michigan, the Committee on the Publication of Papers in Advance of the Proceedings.

Notice was given by Prof. Moore of a proposition to alter Chap. VIII, Art. 2, of the By-Laws, so that the President's address may be read near the opening of the first session; and by the Secretary, to alter the same article so as to define more clearly the duties of the Nominating Committee.

After the election of four new members, Messrs. Averill and Has-

sencamp acting as tellers, a committee of three was appointed to consider and report on the time and place of the next annual meeting. The Committee consisted of Messrs. Heinitsh, of Pa., Judge, of Ohio, and Neergaard, of New York.

A paper on granulated effervescent salts was read by Mr. R. V. Mattison in answer to query 39; no formulas being given in the paper, the subject was, on motion of Mr. Lemberger, referred to the Committee on Unofficinal Formulas.

Mr. J. F. Hancock, in answer to query 8, read a paper on powdered blue mass, which elicited some discussion in relation to the probable oxidation of the mercury when prepared and kept in the form of powder. The subject will be further investigated.

In relation to the preservation of garlic, Prof. Remington stated that Mr. Wallace Procter's experiments had failed to discover another method of preventing it from changing in appearance, besides the one of keeping it in a dry and cool place.

Prof. J. Lawrence Smith, on invitation to address the meeting, spoke of the life-long labors of Liebig, the father of organic chemistry, and suggested the propriety of the pharmacists and druggists of this country to contribute towards the Liebig memorial fund. After some discussion it was, on motion of Prof. Moore, resolved to appoint a committee of three to act in conjunction with the Chemists' Committee on the Liebig memorial, and that each organization represented in the Association be requested to appoint a sub-committee for the purpose of obtaining subscriptions. The committee was subsequently appointed, as follows: P. Balluff, of New York; J. F. Hancock, of Baltimore, and A. E. Ebert, of Chicago.

A communication was received from Professor Yandell, inviting the Association to visit, this afternoon, in a body, the medical department of the University of Louisville; the invitation was, on motion, received, with the sincere thanks of the Association, but respectfully declined for want of time. Invitation cards for visiting Prof. J. L. Smith, at his residence, 71 Broadway, on the evening of Sept. 11th, between the hours of 8½ and 12 o'clock, were, on motion, thankfully received.

Some remarks were made on chenopodium, leaving it undecided whether petroleum-benzin be capable of exhausting this fruit completely of its anthelmintic constituents.

The following papers were read: On colchicin, by O. Eberbach (query 43); On cleanliness as a pharmaceutical virtue, by J. M. Ayers

(query 48); On so-called chemically pure mineral acids, by P. W. Bedford (query 51); also, a communication from Mr. C. C. Fredigke, stating that a chemical analysis of the root and berries of *Phytolacca* would be insufficient to answer the query.

A motion to adjourn until 3½ o'clock P. M. was then carried.

Fifth Session—Wednesday Afternoon.

Vice President Roberts occupied the chair. The reading and approval of the minutes was followed by the following, offered by Mr. Wm. Saunders:

Resolved, That, in view of the great loss which this Association has sustained in the death of one of its founders, Professor Wm. Procter, of Philadelphia, we desire now to express and place on record our heartfelt sorrow at this sad event, which has deprived us of the presence and valued counsels of one of our best-beloved members; and, while recognizing with tenderest memory his great worth and life-long labors in the interests of pharmacy, wish, by this resolution, to render a spontaneous and grateful tribute to one who has ever been ready to lend a helping hand in every good work, and whose genial, social qualities and unvarying kindness to any who needed help, as well as his great scientific attainments, had endeared him to us all; and, while fondly cherishing his memory, would convey our tenderest sympathies to his bereaved family.

Resolved, That this resolution be published in the next volume of the Proceedings, and that the Secretary be requested to transmit a copy to his family, signed by the officers of the Association.

The resolutions were unanimously adopted.

The Committee on the Place and Time of the Next Annual Meeting reported in favor of Boston, the meeting to convene on the second Tuesday of September, 1875, at 3 o'clock P. M. An amendment, to substitute for Boston the City of Toronto, Can., was lost by a vote of 16 ayes against 29 nays; but an amendment to meet on the first Tuesday of next September, was carried. A motion to extend the next meeting over an entire week was lost by a vote of 16 against 27, the opinion prevailing that the duration of the meeting should be subject to the amount of business before the Association. Mr. S. A. D. Sheppard was elected Local Secretary for the ensuing year.

The amendments to the by-laws proposed at the twenty-first meeting were considered and adopted, viz., Chap. II, Art. 1, the sum of $500 was altered to $600, and Chap. IV, Art. 4, the sum of $300

to $400. The salary of the Reporter on the Progress of Pharmacy for the coming year was fixed at $500.

The amendments proposed at the fourth session were considered, and Chap. VIII, Art. 2, was altered so that the President's Address may be read after the appointment of the Committee on Credentials; and charging the Nominating Committee with the duty to nominate officers and standing committees for the ensuing year.

Resolutions concerning the liquor dealers' license of apothecaries were offered by Mr. G. H. Schaefer. The subject having been entrusted to a special committee for some years past, the resolutions were voted down.

A motion to authorize the Treasurer to pay any necessary expenses of standing committees, not to exceed $25 for each committee, was, after some discussion, withdrawn.

Professor Diehl read the introductory portion of his report on the Progress of Pharmacy, which was referred for publication.

The Committee on the Photographic Album reported that they had received, during the past year, about thirty photographs.

The Association adjourned till Friday at 9 o'clock A. M.

Sixth Session—Friday Forenoon.

President Diehl called the meeting to order. After the reading of the minutes, letters were read from Mr. L. M. Royce, in relation to the substitution of chicory for taraxacum (query 46), and from Mr. F. V. Heydenreich, in regard to pancreatin (query 21). All queries, not otherwise disposed of, were, on motion, dropped.

The Liederkranz Society, of Louisville, extended an invitation to the members and their ladies to attend a promenade concert, to be given that evening at Woodland Garden. The invitation was accepted with thanks.

The following volunteer papers were read: On home-made chemicals, by J. R. Mercein; On the officinal rhizomes of the genus *Veratrum*, by Ch. L. Mitchell; On the antiquity of the apothecaries' craft and title, by I. B. Patten; On bromide of ammonium; On phosphoretted resin and on the construction of hydrometers intended for certain liquids, by Dr. W. H. Pile.

Mr. A. E. Ebert exhibited a sample of what has been offered in several States as American opium, and with which article many country physicians had been cheated. It contains but traces of morphia;

when offered for sale it bears some resemblance to opium, but in damp weather assumes the consistence and appearance of an extract. The party offering it for sale usually carries a number of the cakes in a carpet-bag, and states that it has been recommended by Dr. Squibb and Professor Procter, and is used by prominent manufacturers. Mr. R. V. Mattison also gave some information about this individual, who, in different places, names different localities as the place where this fraud is manufactured; it appears to be chiefly extract of lettuce. A vote of thanks was unanimously passed to Messrs. Ebert and Mattison for their efforts in exposing this swindle.

Mr. J. F. Hancock, for the Committee on Unofficinal Formulas, reported a number of formulas for unofficinal preparations, which were referred for publication. On behalf of the Chicago College of Pharmacy, a set of formulas for elixirs was presented, with the recommendation that they be adopted in lieu of those adopted at the meeting last year (see *Amer. Jour. Pharm.*, 1874, Feb., p. 83). A resolution was offered by Mr. Peixotto that all the formulas for elixirs be referred to a committee of three, to be critically examined by them, modified, if necessary, and reported on in time for the publication of the Proceedings. The motion was adopted with an amendment offered by Mr. Roberts, that the committee report at the next annual meeting. A motion offered by Mr. W. S. Thompson, that the formulas of the Chicago College of Pharmacy be published in the Proceedings, was lost. The Committee appointed under the above resolution consists of Messrs. William McIntyre, R. V. Mattison and G. W. Kennedy.

Mr. Hancock exhibited a patented glass percolator, with a glass stopper, the latter being intended to prevent the evaporation of the menstruum, by condensing any volatilized portion upon the under side of the stopper.

Six gentlemen were elected to membership, Messrs. McAfee and McIntyre acting as tellers.

A communication from Dr. Streit, on pharmaceutical laws, was referred to the Committee on Legislation.

A communication from Mr. W. C. Bakes, proposing the appointment of a committee for the purpose up fitting up a store, which should represent the highest type of American Pharmacy, for exhibition at the Centennial Exposition in 1876, was laid upon the table.

Mr. C. W. Holmes, on behalf of the Committee on Specimens, read a synopsis of their report, to finish which sufficient time was granted.

The report of the Committee on Papers and Queries was read and referred for publication.

The collection of pressed medicinal herbs, exhibited by B. O. and G. Wilson, of Boston, and the Caucasian silk cocoons and specimens of *Pyrethrum roseum*, exhibited by M. E. Betannelly & Co., of Philadelphia, were presented to the Louisville College of Pharmacy.

According to a resolution offered by Dr. A. W. Miller, proprietary medicines of foreign manufacture will hereafter be rigidly excluded at the exhibitions in the same manner as our domestic nostrums.

A resolution that patent apparatus for pharmaceutical use be admitted to the exhibitions, and to illustrations and descriptions in the Proceedings, was laid upon the table.

The following resolutions, offered by the Business Committee, were unanimously adopted:

"*Resolved*, That the thanks of the visiting members of the American Pharmaceutical Association are due and are hereby tendered to our brethren of Louisville for the courteous reception that they have extended to us; that to them is due the fact that our meeting will rank amongst the most pleasurable that we have ever attended.

"*Resolved*, That the thanks of the American Pharmaceutical Association are hereby tendered to the press of Louisville for the exact and fair reports they have made of our proceedings."

Adopted with acclamation.

The Association then adjourned, to meet in Boston, on Tuesday, September 7th, 1875, at 3 o'clock P. M.

PHARMCY TWO HUNDRED YEARS AGO.

The Royal Pharmacopœia, Galenical and Chymical, according to the Practice of the most Eminent and Learned Physitians of France, and publish'd with their several approbations. By Moses Charras, the King's Chief Operator in his Royal Garden of Plants. Faithfully Englished. Illustrated with several copper plates. London: Printed for John Starkey at the Miter within Temple-Bar, and Moses Pitt at the Angel in St. Paul's Church-Yard. 1678.

The above is the title of an antiquated work in my possession, and I thought, perhaps, in these days of syrups, elixirs and sugar-coated pills, a short description of its contents might not prove uninteresting to the readers of the Journal. The work is prefaced by the "Approbations of several learned Doctors, besides the Dean and Doctors of the Faculty of Physick in the University of Paris."

The first part (galenical) treats of the different "medicaments" and their mode of preparation, and defines a medicament to be anything that is capable to change our nature for the better. "Poyson differs from medicament in this, that it destroys our nature; but it may pass for medicament in regard that Pharmacy is able to correct and tame whatever it has of wild and mischievous, and render it wholesome." "The matter of medicaments are taken from vegetals, animals and minerals."

By vegetals is understood "Trees, shrubs, brambles, herbs, with all their parts; all things that belong to or grow upon them; and in general everything that has a vegetative life." Here follow the names of the "vegetals." "By animal I understand fowl, land creatures, water animals, and such as are accustomed to land and water; and not only such as are made use of whole, as scorpions, frogs, worms, chestops, little dogs, emmets, cantharides, lizzards, etc., but all the parts of the bodies of animals which may be used in physick, not excepting their excrements and superfluities, as are the brain, the fat, the blood, the hair, the dung and urine of men; the horn, the pizzle, the stones, the suet, the marrow, the bone of the heart of a deer; the liver and inwards of a wolfe; the grease, melt, the yellow stones and bone in the heart of an oxe, the foot of an elk, the lungs of a fox, the brains of a sparrow, the tooth of an elephant and a wild boar, the horn of unicorn and rhinoceros, the ringbone, hoof, fat and dung of a horse; the dung of a mule, or ass musk; perles, bezoar, shells; the heart, liver, trunk, head, tayl, fat and skin of vipers," etc., etc. Following is a list of the metals, among which is found sulphur, alum, chalk, bismuth, zinc; including as *metals,* water, rain, hail, snow, ice and thunder-bolts.

The virtues of medicaments are divided into three qualities. I will only mention the last: "The third qualities are hidd'n and we can only find them out by experience. As, when a jasper apply'd to a wound stops the blood; when a toad dry'd, being held in the hand, stays bleeding at the nose and asswages the tooth-ache, which is also performed by the bone in the fore-leg of the same toad; when a stick of ash, boyl'd under a certain constellation, stops all losses of blood. As, when a hazel stick, gather'd in its proper season, heals all contusions; when the eagle stone, hung about the neck, hinders abortion, and hastens and facillitates the birth, being tyed to the thigh. As, when certain plants ty'd to a horse's tayl heal the farce; and several

other effects of the same nature, of which philosophers labour to give the natural reason."

The author had an opinion of the qualifications of a pharmacist that has lost none of truth by age. "No man can undertake the preparation of any medicin before he know it; no more can any man practice mixture before he know preparation, for all medicaments are not so simple, so known, so usual, so easie to mixe, as water and wine."

I will close by giving a few of the formulas.

"*Emulsion against the Dysenterie.*

" ℞	Sweet Almonds, blanch'd, . . .	℥j
	Lettice,	
	White Poppy,	
	Quinces, ...	āā ʒij

Bruise all these in a marble mortar, pouring upon them by degrees one pint of the decoction of cleans'd barley, purslain, and speedwell. Strain and press them; to the straining add syrup of quinces and white poppy ℥j. Make three doses, to be tak'n at convenient hours."

Some of the formulas are notable from the number of the ingredients, one of them calling for sixty-three different articles.

Here is one, "recommended to asswage the pain and to facilitate the delivery of women; the whole region of the belly being anointed therewith:"

" ℞	Live Vipers, large, fat and vigorous, .	No. xij
	Pure Common Oyl, ...	℔ij
	Strong White Wine, . . .	℥ij

Pour the oyl into a glaz'd earthen pot with a narrow mouth and let it boil in a hot bath till you cannot endure your finger in it, then plunge the vipers into the oyl; when they are stifl'd pour in the wine, cover the pot and set it a boiling till the moisture of the vipers be almost consumed, then, having strained and strongly pressed forth the whole, and separated the oyl from the feces, keep it for use."

"*Pills, without which I would not be.*

" ℞	Extract of Aloes, succotrin, prepared with juice of pale roses,	ʒxiiij
	Diagrydion,*	ʒvj

* An old name for scammony.—*Editor Amer. Journ. Pharm.*

Whitest Agaric,
Choice Rhubarb,
Leaves of Senna, cleans'd. . . . . . ℥ss
Red Roses, cleans'd,
Tops of Wormwood,
Seeds of Violets, and
Dodder,
Mastich, ... āā ʒj."

* * * * * * * *

"The good effects which these pills have wrought have won for them the title of *sine quibus effe nolo—without which I would not be.* They purge the Flegm wonderfully, and both Cholers; they are very prevelant against Diseases of the Head, especially those of the Eyes and Ears. They are to be taken after the first sleep, or in the morning fasting. Their dose is from a scruple to a drachm, and sometimes to four scruples."

Jno. E. West, M. D.

St. Clairsville, Ohio.

EMULSIO CARNIS.

By James Kemble.

It has long been a question with me whether or no fresh raw beef could not be utilized as a medicine, and administered in a concentrated fluid form, where a strong nourishing diet is more needed than medicine. Seeing an article in the *Medical Times* on the administration of raw beef, I concluded to institute a series of experiments, to determine the possibilities of preparing a solution of it that would keep long enough without change to be of practical use. My experiments and their result were as follows:

Fresh Raw Beef (lean), ...	℥ii
Sweet Almonds, ...	ʒiv
Bitter Almonds, ...	ʒiii
Sugar, ...	ʒii
Water sufficient for emulsion, . . .	f℥viii

I rubbed the almonds, beef and sugar to a fine pulp in a wedge-wood mortar, then added water gradually until a smooth paste was formed, added more of the water and strained through a sieve, returned the mass to the mortar and manipulated with the balance of the water until f℥viii of emulsion was obtained, strained through a finer strainer

and bottled; this in my experiment, I designate as No. 1 emulsion. I then mixed of

(2) No. 1 Emulsion, f℥xiv with Brandy, . . . f℥ii
(3) No. 1 Emulsion, f℥xiv with Sherry wine, . . f℥ii
(4) No. 1 Emulsion, f℥xiv with Glycerin, . . f℥ii

Experiment No. 2:

A. Fresh Raw Beef (lean), ... ℥ii
Sweet Almonds (roasted). . . . . . ʒv
Bitter Almonds, ... ʒii
Sugar, ... ʒii
Water sufficient for emulsion, ... f℥viii

Manipulated the same as No. 1, until an emulsion was obtained; it was mixed as follows:

B. Emulsion No. 2, f℥xiv with Brandy, . . . f℥ii
C. Emulsion No. 2, ℥xiv with Sherry wine. . . f℥ii
D. Emulsion No. 2, ℥xiv with Glycerin, . . . f℥ii

I made the above divisions for the purpose of testing the preservative properties of each agent employed, with the following results:

After twenty-four hours, all sweet and good.

After forty-eight hours—

No. 1. Emulsion fermented; unfit for use.
No. 2. Perfectly sweet.
No. 3. Faint odor; least bit sour.
No. 4. Sweet and good.

A. Emulsion No. 2, fermentation commenced.
B. Sweet and good.
C. A little sour, but no odor.
D. Sweet and good.

After seventy-two hours—

No. 2. Slightly sour, but without odor.
No. 3. Fermentation commenced; putrescent odor.
No. 4. Fermentation commenced; putrescent odor.

B. Good, but a slight sour taste left on the tongue.
C. No odor, but sour.
D. Sweet, good and palatable.

After ninety-six hours—

B was unfit for use: fermented.
C was sour; unfit for use; fermented.
D was very slightly changed, still palatable.

It will thus be seen that the brandy and glycerin possess about equal preservative properties, although, in the latter case, the glycerin seems to preserve the greater length of time. The preference would

seem to be in favor of roasting or charring the sweet almonds, as it destroys, to a considerable extent, the tendency of the emulsion to induce fermentation.

I then made another lot of emulsion and tried it with ʒii of brandy and glycerin, respectively, to f℥i of emulsion; also with three grains of sulphite of calcium, sulphite of sodium and chloride of sodium, respectively, to f℥i of emulsion; the result was like experiment No. 2, with the glycerin and the brandy. The chloride of sodium mixture began to change in thirty-six hours (perhaps would not have done so if the proportion of salt had been larger). Sulphite of calcium and sulphite of sodium acted very similar; the emulsions showed no change for sixty hours, were fit for use for seventy-six hours, although change had commenced, but were unsightly, unpleasant mixtures, while glycerin and brandy, or both combined, possess greater preservative properties and make a pleasant palatable mixture.

I then made some more of the emulsion to ascertain *how much* beef could be incorporated in a pint of emulsion, and found that eight ounces may be incorporated into it; but for practical and economical purposes, six ounces is all that can be thoroughly exhausted of all soluble matter.

It will be seen, by the experiments here made, that raw beef is applicable to every-day practice in hospitals, cities and places where there is access to markets for the beef. Physicians can prescribe the dose to suit their patients, and it will have to be made fresh every three or four days during warm weather. My experiments were made in July, with the thermometer ranging among the nineties. I judge that in cold weather, this preparation could be made to keep good and sweet for a week or more.

I would suggest a formula for general use, as follows, viz.,

Fresh Raw Beef (lean),	℥vi
Sweet Almonds, deprived of their shells and roasted	℥i
Bitter Almonds,	ʒvi
Sugar,	ʒvi
Glycerin,	℥ii
Water sufficient for emulsion,	℈i

Rub or beat the beef, almonds and sugar to a fine pulp in a wedge-wood or wooden mortar, then add water gradually until a smooth emulsion is formed, and strain through a seive or coarse cloth; return the residuary mass to the mortar, manipulate with the balance

of the water until f℥xiv are obtained, strain all through a finer strainer, add the glycerin and bottle; the bottle is to be kept well corked. Dose:—f℥i, containing ʒiii of the beef.

The physician in prescribing, can order the addition of brandy, pepsin, or any other medicine he wishes to administer at the same time. I tried combining ferric pyrophosphate with the mixture; it combines well, but makes a dark, unsightly preparation, on account of the combination of the iron with the blood contained in the beef.

Philadelphia, August, 1874.

CALCINED MAGNESIA IN MIXTURES.

By Hans M. Wilder.

Some time ago, I received the two following prescriptions:

I. Magnes. ustæ,	ʒii.	
Aquæ destill.,	℥ii.	ℳ.
II. Magnes. ustæ,		
Bals. copaivæ,	*āā* ℥i.	
Aq. camphoræ,	℥v.	
Syrup. tolu,	℥i.	
Spir. æth. nitr.,	ʒii.	ℳ.

As both prescriptions were written very plainly, and no objections otherwise could be made to them, I dispensed them to the letter, although I knew that both mixtures would become solid in a short time. I was hereby induced to examine whether it would not be possible to keep them in a liquid state, at least for a few days. An observation of Mr. Gobley's (*Amer. Jour. Pharm.*, xvi, 1845, p. 273), that the presence of sugar would retard, if not altogether prevent, solidification, led me to try the addition of sugar also.

I consequently made eight mixtures:

1. One part light calcined magnesia and eight of water.
2. The same, but submitted to boiling.
3. One of light calcined magnesia and eight of simple syrup.
4. One of light calcined magnesia, six of water and two of syrup.
5. The same, submitted to boiling.
6. One of light calcined magnesia, four of water and four of syrup.

Further:

7. One heavy calcined magnesia (Powers & Weightman), and eight of water.
8. The same, submitted to boiling.

After a quarter of an hour, 1 was jelly-like; 2, somewhat stiffer (by the addition of one drachm of water it could be shaken); 3 could be freely shaken and poured out; 4, somewhat between 2 and 3; 5, just the same; 6, stiff jelly.

After twenty-four hours, 1, 2, 4 and 5 were quite stiff; addition of a little water to 1 made it quite fluid; the consistence of 2, 4 and 5 was not altered; 3 and 6 decidedly hard.

The two heavy magnesia mixtures behaved like any mixture of water and an insoluble powder, remaining at the bottom of the vial, but very easily shaken up.

The results I arrived at are: 1st, To mix light calcined magnesia with *not less* than twelve parts of water; or, where the amount of liquid cannot be increased, to use the heavy calcined magnesia. 2d, Boiling does not make the mixture more fluid. 3d, Sugar does not prevent hardening, except on increasing the quantity of liquid, and is then not necessary.

MUCILAGE OF GUM ARABIC.

The instability of mucilage of gum arabic, when prepared in accordance with our Pharmacopœia, makes it necessary for pharmacists to prepare it in small quantities or else dispense a preparation unfit for medicinal use. In fact, during the summer months, the mucilage undergoes change so soon that we have prepared it as called for, using granular acacia. This has been a serious inconvenience, and hoping to overcome it, we made a few experiments last May, and found that by substituting "tolu water" for water, the mucilage kept well several months.

The "tolu water" is prepared as follows:

℞.	Tinct. Tolu (saturated), ...	f℥ii.
	Carb. Magnes., ...	℥iv.
	Aquæ, ...	Oii.

Rub the tincture first with the carbonate of magnesium, and then with the water gradually added, and filter.

The mucilage thus prepared has a faint odor and flavor of tolu, which is not objectionable and in many instances might be advantageous; in appearance it is identical with the officinal.

We think tolu prevents change in liquids upon the same principle and just as effectually as benzoin obviates rancidity in unctuous sub-

stances, and its preservative influence might be utilized in the preparation of many syrups and mixtures, which are remarkable for instability.

Benzoin, storax or balsam of Peru, would no doubt prove as good a preservative as tolu, but we think tolu the least objectionable.

Archer & Co.

Norfolk, Va., September 11th, 1874.

PRESCRIPTIONS.

By M. S. Bidwell.

Notwithstanding all that has been written by physicians and pharmacists on this subject, there are some points that do not seem to have been placed before the two professions with sufficient clearness. As this is a subject of interest to all your readers, will you allow me to attempt this?

The first question is on the ownership of the prescription or recipe. To which one of the three parties concerned—physician, patient and pharmacist—does it belong? It may aid us in answering this question fairly, if we first consider what a prescription is, illustrating it by an example. Suppose a physician to visit consecutively three patients. To the first he may say, "You need some beef tea: get a piece of the round to make it of. I will give you a note to the butcher, explaining what kind you want." To the second he might say: "Send your boy to my office with this memorandum, and the student there will give you the necessary medicine"—the memorandum directing, perhaps, to give him four pills out of the box on the lower shelf, or any other instructions that the student will understand. To the third he gives a recipe, in the usual form, directing the pharmacist into whose hands it may come to put up a certain mixture for the patient's cough. Now, is it not evident that the note to the butcher, the memorandum to the student, and the recipe to the pharmacist are precisely analogous? We may therefore define a prescription to be a confidential letter from a physician to a pharmacist, instructing him to dispense certain medicines according to directions given. So far, then, as these two parties are concerned, it would follow the same rule as any other letter—the recipient being entitled to its custody, but having no right to publish it, or use it in any similar way, without the consent of the writer.

But there is a third party in this case—the patient; and by universal custom, sanctioned by law wherever the statutes touch the subject, he is entitled to a copy of the document. The original should remain in the hands of the pharmacist, for reasons which need not here be given.

The second point concerns what is called the renewal of prescriptions, or, more properly, dispensing the same medicines repeatedly on the same recipe. This very common practice has been extensively denounced by physicians, on various grounds, but with a curious and complete disregard of the party most directly interested—the customer. Their usual line of argument on this subject, if carried out to its legitimate conclusion, would forbid the sale or use of any medicines unless by the express direction of a doctor. They say, with perfect truth, that much harm is done by ignorant prescribing, and by unqualified persons dosing themselves and others with medicines whose powers they do not understand. Therefore the government, or the druggist, or somebody, should henceforth decree that this be done no more. They do not apply or state it so broadly as this; but the principle is evidently the same, whether the medicine were originally prescribed by a physician or not; so that it is here stated in ts broadest form, in which shape it is a clear *reductio ad absurdum*. The evident answer, if any answer is needed, would be, that in this country every one is presumed to be able to judge for himself, and must be allowed to take his own risk, if he will. Any interference on the part of the druggist would naturally be resented as an impertinence, and be met by the just remark that it was none of his business.

In the more special case immediately under our notice, the reduplication of the prescription cannot be prevented, even if both physician and druggist should try to do so. The patient is entitled to a copy, and can, of course, have the same medicine put up from that, or from a copy of that. Even physicians will hardly claim that no druggist should ever put up any medicine that any physician had ever prescribed!

There is another complaint often made by physicians, which is, in some respects, the reverse of this, viz., that prescriptions are often "stolen" from them by druggists and others, and used to their disadvantage, by curing their patients without their help. In the former case, the ostensible ground of complaint was that the recipe

might injure the patient; in this, the danger is that it may benefit him, without bringing any pay to the physician. Poor doctor! so long as he does not get his fee, he is equally dissatisfied, whether the patient grows better or worse! Well, it is hard, if a man has got hold of an efficient formula for a certain class of cases, to have Tom, Dick and Harry steal his thunder, and cure just as many and just as well as he can himself, and perhaps make a great flourish about it, too. But our pity for him will be lessened if we remember that he himself owes almost all of his prescriptions to others; and it will be reduced to a minimum by the reflection that it is only by the free contribution of many workers that medical science (or any other) can ever be built up. The only way a man can keep others from knowing what he does, is to keep it a secret, which, if generally carried out, would throw us back into the dark ages.. At the same time it must not be forgotten that, if any one wishes to monopolize any item of knowledge, he has a perfect right to do so, and no one can justly complain of such a course, though no one can admire it.

Briefly to recapitulate:

(1). A prescription is a confidential letter from a physician to a pharmacist, the latter having the right of custody, but not the right to make it public. The patient, being an interested party, has a right to a copy.

(2). The druggist's business is to furnish whatever medicines the customer wants, whether prescribed by a doctor or not, the patient taking his own risk.

(3). The physician, like any other scientific man, should be liberal in communicating what he originates, because most of his own knowledge is derived from others, and in this way only can science be advanced. But this obligation is ethical, not legal, something to be desired and recommended, not enforced.

I hope no part of the above will be understood to countenance the practice of "prescribing across the counter," or of prescribing by any other unqualified party. This is a nuisance in the drug business, and one that every intelligent and fair-minded pharmacist will endeavor to abate. But the doctors do not seem to me to be really the sufferers, nor (according to my observation) are the druggists usually the sinners. Both the fault and the suffering belong to the ignorant public, who insist upon the druggist "fixing them up something for a cough," so that they may evade the payment of the doctor's fee. This subject is a painful and suggestive one, too extensive to be followed out here.

NOTE ON NEW ZEALAND KAURI GUM.

By M. M. Pattison Muir, F.R.S.E.

This gum or resin exudes from a tree (*Dammara Australis*) belonging to the family of pines. It is largely imported into this country for the purpose of making varnish.

The sample which I have examined was sent to me about two years ago by my brother, John M. Muir. The substance was in the form of a hard, brittle, yellowish-white mass, which could be easily cut with a knife. By rubbing, the surface became highly polished, being at the same time electrically excited.

Here and there throughout the mass non-transparent milky blotches occurred. The fracture was conchoïdal. Specific gravity = 1·042. On treating the powdered gum with water, part of it dissolved, but the greater portion remained unacted upon. This insoluble portion was partially dissolved by alcohol, in which solution the addition of water caused a white turbidity.

About fifty-two per cent. of the original substance was found to be soluble in boiling alcohol, while the residue was almost entirely dissolved by digestion in ether at the ordinary temperature.

The alcoholic solution of the gum showed a slightly acid reaction; traces of benzoic and succinic acids were also discovered.

From these reactions "Kauri gum" appears to be a mixture of resins (probably more than one) and true gum: hence it may be classed among the gum-resins. The following are some of the reactions of this substance with reagents:

1. Strong nitric acid, aided by gentle warming, attacks Kauri gum violently, the products of the reaction being a yellowish-white solid mass, and a small quantity of a reddish liquid. The solid substance is but slightly soluble in hot alcohol or in hot ether, the liquid gives a yellow flocculent precipitate when thrown into water.

2. Concentrated sulphuric acid dissolves the gum, forming a clear red liquid, from which a white semi-solid substance precipitates on the addition of water. If heat be applied, sulphuric acid partially decomposes the gum, at the same time forming a dark-colored liquid, in which water causes no precipitate.

3. Bromine and chlorine both attack Kauri gum violently, dense fumes being evolved, the product in the former case being a blackish mass, which dissolves in alcohol, with formation of a red liquid. In the latter case carbon only remains.

4. Caustic potash or soda when boiled with this substance, causes it to swell up, and eventually to form a light yellow hard mass, only a very small quantity of the gum being dissolved.

When Kauri gum is subjected to dry distillation, it melts, froths up, and gives off dense fumes along with a quantity of a heavy oil, which is of a brown color, and exhibits a green fluorescence.

Accompanying this oil is a considerable amount of water. The yield of admixed oil and water amounts to about one-half of the original amount of gum; the residue in the retort is a thick dark red liquid, which solidifies on cooling to a brittle, transparent solid mass.

After drying the oil by means of calcium chloride, and subjecting it to distillation, it was found that less than one-half distilled over below 320° C., and that the remainder solidified when cool into a substance resembling that which remained after the distillation of the original gum. Of the oil boiling below 320°, the greater portion was found, by repeated fractionation, to boil between 155° and 165°, while a small quantity boiled between 270° and 290°.

The oil boiling between 155° and 165°, was nearly colorless, had a resinous odor, was immiscible in water but soluble in a tolerably large amount of alcohol. Its specific gravity at 20° was ·854, on analysis it gave the following numbers:

·172 grm. gave ·216 grm. water = ·024 grm. hydrogen = 10·90 per cent.

·172 grm. gave ·499 grm. carbon dioxide = ·136 grm. carbon = 79 07 per cent., leaving 7·03 per cent. of oxygen.

These numbers would lead to the formula $C_{10}H_{20}O_7$, but the quantity at my disposal was so small, that I do not feel inclined to definitely admit the correctness of this formula until further experiments have been undertaken.

Hydrochloric acid gas changes this oil into a dark greenish brown liquid.

The quantity of Kauri gum which I obtained from New Zealand was too small to admit of further experiments being carried out, but I hope soon to receive a further supply, when I shall resume this investigation.—*Journ. Chem. Soc.*, *Aug.*, 1874.

LICORICE.

The licorice plant may be seen growing at Mitcham, in Surrey, and at Pontefract, in Yorkshire, and the produce, we were informed

upon a recent visit to the former locality, is considered more valuable than that imported from abroad.* The shrubs present the appearance of an ash plantation, from which they could scarcely be distinguished at a distance. The stems are from three to four feet high, growing erect, equal in thickness to a middling-sized willow, and covered with dull green colored leaves, clammy to the touch on their under side. The flowers, which are of a pale blue, are succeeded by very short smooth pods containing three or four seeds. The length of time required for maturity is from three to four years, when the roots can be taken up and the proprietor may expect to derive some return for his outlay in rent and labor. The depth to which these strike downwards often compares with the height of a man, and the soil needs, therefore, to be of a deep sandy loam, entirely free from stones, which cause the roots to become crooked or warped, and thus diminish the value of the licorice as a salable commodity.

The same land will produce a continuous crop, but then a good addition of manure is needed, about forty or fifty tons per acre, depending upon the previous richness of the soil. The ground, to be properly prepared, must be spade trenched to the depth of four or five feet, and laid in ridges upon the top until the spring; when the mould has become pulverized the ridges can be levelled and prepared for planting, the best time being the month of March. The beds are three or four feet wide, and these must be kept clean during the summer, and about November. when the sap has descended, and the tops appear yellow, the old stems or stalks are cut off close to the ground with a sharp pruning knife, the spaces between the rows being turned over and left rough. The roots are usually dug up with a large three-pronged fork, and stacked in trenches, and this stacking is effected in a dry and sheltered place, the roots being placed upright with layers of sand between them, and a good layer of several inches thick on the top. In this manner the stock is preserved by the proprietor until required for market. Near Pontefract the licorice is

*Some years ago. an attempt was made to cultivate the licorice plant in several parts of the United States on a somewhat extended scale, and with apparent success. It would be of great interest to learn whether the cultivation is still continued or has been abandoned, and in the latter case to learn the causes of failure. Can any of our readers supply us with some facts?—Editor Am. Journ. Pharm.

cultivated chiefly for the preparation of a fine kind of cake, which is well known as the Pontefract lozenge, which is made of a refined licorice, and bears the stamp of the city arms. At Mitcham the licorice is tilled for the sake of its long slender roots, that find their way to the wholesale druggists and Covent Garden. A good-sized stick is about the size of a well-grown horse-radish, although some are as large as a small parsnip, and three or four feet in length. In taking up the crop a trench is made out to the depth of three, four, or five feet, according to the depth of the former trenching; then a rope is tide round the top, but it takes all the strength of a man to pull the root up, and it generally breaks up some foot or so below the trenches; this root is not eyed like the horse-radish, and when once broken off it can never sprout again. During the autumn there are small roots that descend only a few inches beneath the surface; these must be forked up and cut close off by the stem of the plant, and if fresh plantations are wanted they are cut into pieces and laid in heaps out of doors, where they are covered with straw and mould during the winter, but if not wanted for planting they are sold for inferior uses. These roots are pithy and not half so sweet as the down root, and if not taken up the ground becomes full of worthless licorice, and the main crop is completely choked, as was the case before we understood its cultivation in this country.

The licorice has been growing at Mitcham since the days of good Queen Bess and Sir Walter Raleigh of grateful memory, who brought many new and useful ideas to this country, imbibed during his distant travels; and within the last thirty years there were beds of this shrub at New Cross, where the Thames had left its deposit of mud, but since occupied by the Brighton railway station. At the present time the knowledge of its treatment is confined to certain localities: owing also to the time which elapses before any proceeds can be realized, and the active competition from abroad, there does not seem, from these united causes, any probability that this cultivation will be greatly extended. The consumption is believed to have increased very much of late years, for in addition to its well-known uses by the druggists, quantities are employed in the making of beer, and in the United States still greater quantities in the manufacture of tobacco.

The root is found growing throughout the whole of the southern countries of Europe, extending from the Crimea to Portugal, but in Spain and Italy, and particularly in Sicily and Calabria, the juice

makes a considerable article of commerce with this country. The best Italian roots are obtained from Martucci, Ferrara, and Cassano, and are marked with their stamps; these contain sixty-two to sixty-seven per cent. of soluble extract, and seventeen to twenty-six per cent. of insoluble residue. The exports from Italy in 1870 were 177,462 kilogs., of which 60,365 went to Great Britain; 43,680 to Austria; 64,787 to the United States; the remainder to France and Holland. From Naples the value of the licorice exported in 1872 was 63,394*l*. sterling. In Spain, the provinces of Seville, Valencia and Catalonia are the most productive; from that country the exports in 1868 were 1,859,336 kilogs., of which 1,840,448 went to France; 2,393 to Great Britain; the remainder to Sweden, Hamburg and Portugal. In both these countries great attention is paid to the preparation of the sticks, which are termed "solazze" when in a soluble form. The boiling requires the utmost care, as the juice takes an unpleasant smell and flavor if burnt in the slightest degree. The paste is manufactured from the month of November till March, the warm season being very unfavorable for it; so much so, that it is not advisable to ship any in the summer, as it easily runs into one mass in the boxes, and then is only fit to be sold for damaged licorice. Of the dried root, one hundred pounds yield about thirty pounds of the black extract. When the extract has been obtained, it is poured into rolls of six or eight inches in length, which are bound with bay leaves to prevent their adhering together. The best quality should be bright, brittle, without pores, and of a good fragrant smell. The licorice grows wild in Greece, more especially in the province of Achaia, at Corinth, Phthiotes and Missolonghi, being in great abundance, and the quality is considered good. It is also amongst the products of the Levant. In the year 1872 the imports into Great Britain amounted to 28,000 cwts.; from France we derived 5,603; from Spain, 3,399; Italy, 11,170; Turkey, 5,754; other countries, 2,474; the whole valued at 75,091*l*. sterling. Our exports at the same time were 7,414 cwts., chiefly to the United States, British North America and Australia, valued at 21,146*l*. sterling. Our consumption of foreign licorice root, therefore, exceeded 1,000 tons weight, and worth upwards of 60,000*l*. The uses of licorice were well known to the ancients, and at the present day the Turks and Egyptians consume a drink, which is sold in the streets of their cities in the same manner as sherbet, and is known as "Ergoos;" in

France the licorice water is drunk at the public rendezvous under the name of "Coco;" it is slightly laxative and cooling, anti-scorbutic, and, unlike other sweets, it quenches thirst.—*Chemist and Druggist, August* 15, 1874.

THE CHEMISTRY OF MILK.

By Edward J. Hallock, A. M.

Like most other articles of food, milk consists largely of water, nearly 88 per cent. being present in pure and unadulterated country milk. Prof. Wanklyn gives the following as the average composition of country milk:

Water,	87·56 per cent.
Fat,	3·07 per cent.
Casein,	4·04 per cent.
Milk sugar,	4·62 per cent.
Ash,	·71 per cent.
	100·00

The fat, which exists in the form of minute globules, is a mixture of olein, palmitin, stearin, butyrin and other fats. When the little sacs containing this fat are broken by agitation, as in the operation of churning, the fats agglomerate together to form butter. The specific gravity of milk fat is about 0·9, while the solution in which it is suspended will average about 1·03, so that when milk is left at rest for two or three hours it rises to the top and forms what is known as cream. In the manufacture of butter, this alone is employed, as it contains all the fat, along with the peculiar flavoring matter of the butter. According to Chevreul, ordinary butter from cows' milk is composed of stearin, margarin and olein, with small quantities of butyrin, caproin and caprin, to which its odor is due. In fresh butter, the butyric acid ($C_4H_8O_2$) is combined with glycerin to form butyrin, an inodorous substance. On standing, the butyric acid is set free and imparts to rancid butter its well-known and unpleasant odor. Butyric acid, although not very pure, can be obtained by saponifying butter with an alkali and distilling the soap with sulphuric acid. It is employed in the manufacture of butyric ether, or oil of pineapple. Good milk usually contains about 10 per cent. of cream, and some idea of the purity and richness of the milk may be gained by pouring some of it into a graduated glass tube, and notic-

ing the number of spaces occupied by the cream after it is allowed sufficient time to settle. Tubes intended for this purpose are sold under the name of creamometers.

Casein is the name applied to the nitrogenous constituents of milk, which are coagulated by acids, and which have received this name from their use in the manufacture of cheese. A portion of the nitrogenous substance, known as albumen, is coagulated by boiling, and then forms those repulsive little films generally met with in boiled milk. Casein is soluble in fresh milk, but insoluble in milk which has "turned." Wanklyn attributes this to a molecular change, resembling the change from soluble silica to insoluble silica. This change, as we have said above, is produced by the presence of any acid; in "sour milk" it is caused by the lactic acid ($C_3H_6O_3$) formed by the incipient decomposition of the milk sugar. In the manufacture of cheese, the milk is curdled by means of rennet; but, before doing this, more or less of the cream is removed, rendering the cheese less nutritious than the milk from which it was formed. A skim-milk cheese contains but 6 per cent. of fat, while some rich English cheeses contain 30 per cent. The ultimate composition of casein is the same as albumen and fibrin. Milk from which both fat and casein have been removed as far as practicable is known as whey, and is essentially a solution of milk sugar with some mineral salts. Milk sugar can be prepared by coagulating the casein, and removing that along with the fat, and then evaporating the whey to crystallization and purifying by filtration through animal charcoal. It is manufactured principally in Switzerland, and comes into market crystallized on strings, when it somewhat resembles an ear of corn. It has the composition $C_{12}H_{24}O_{12}$, dried at 212° F. It is much less soluble than cane sugar, dissolving in 5 or 6 parts of cold water, and 2½ parts of boiling water. It is not so heavy as cane sugar, and reduces the oxide of copper like grape sugar. Its principal use is in the preparation of homœopathic medicines, as envelope and dilutant.

The ash, or mineral matter, which remains when milk is dried up and the residue incinerated, consists mainly of phosphate of lime and alkaline chlorides. The quantity of mineral matter in cows' milk is but three-fourths of one per cent.; in human milk it is much less, or about one seventh of one per cent.

Testing Milk.—Since it has become customary for milk dealers to endeavor to palm off on their customers a minimum quantity of real

milk, mixed with a maximum quantity of water, under the name of milk, it is sometimes interesting to compare different samples of such milk for the purpose of determining the amount of water added. English chemists have devoted considerable attention to this subject, because there a law exists punishing adulterations in food and medicine, and we shall frequently have occasion to refer to their observations. The specific gravity of milk, as indicated by hydrometers made for the purpose, does not serve to detect carefully-conducted watering. The average density of good, pure milk is about 1·032. Since milk fat is lighter than water, the more cream the milk contains the lower its specific gravity, while skimmed milk has a higher specific gravity than unskimmed milk. Hence it is possible to preserve the normal density in watered milk by first removing a portion or all of the cream, and then adding just enough water to bring it back to its original density. To ascertain the quantity of water added, it is necessary to determine by analysis the quantity of fat present in the milk. John Horsley, F. C. S., accomplishes this in the following manner:* A glass tube, 11 inches long, and three-fourths of an inch in diameter, is graduated from 10 inches down, one-fifth of its length, into per cent., or hundredths. A tablespoonful, 15 c.c., or 250 grs. of milk are first poured into the glass tube; a smilar bulk of ether is next poured in, and the tube closed with the thumb or a cork, and agitated for four or five minutes. An equal measure of alcohol is next added and the whole well shaken for at least five minutes more, when, on placing it in an upright position on a stand, the oily or fatty matter will rise to the surface, and can be easily read off. Each line will correspond to 4·15 grains of solid butter, as proved by experiment. Milk which has 10 per cent. of cream will show two lines of butter oil, or 8·3 grains, for 250 grains of milk. If desired, the butter may be drawn off and weighed in a small platinum capsule.

Mr. Wanklyn prefers to evaporate 5 c.c. of the milk to dryness in a weighed platinum dish over a water-bath. The operation requires at least three hours. The residue equals the total milk solids, and averages, with a sample of good country milk, 12·45 per cent. This residue is treated with ether and heated to boiling, and the solution poured through a small filter, the operation of boiling and pouring off the ethereal solution being repeated three times. The solution of fat

* Chemical News, May 2, 1874, p. 224.

is placed in a larger weighed dish, and the ether gently evaporated by placing it in warm water. When, toward the close, it becomes turbid, the dish is placed on a water-bath and heated to 100° C. for a short time, until the fat is dry, when it is weighed. The weight of the fat, subtracted from that of the total milk solids, gives the amount of milk solids not fat, a very important datum, as it is the most constant quantity in milk analysis, and gives, by a very simple calculation, the extent of watering to which the milk has been subjected.

The determination of casein is usually unnecessary, but may be made to prove that the milk was adulterated with skim instead of water. The portion insoluble in ether is extracted with strong alcohol, then with boiling water, dried up in a water-bath, weighed, ignited, the ash weighed and its weight subtracted from the previous weight of casein and ash. The result is crude casein, including, of course, the albumen, &c. The use of skimmed milk is shown by the presence of more casein than the natural quantity, and less butter or fat.

The determination of the total ash is made by simply evaporating 5 c.c. of milk to dryness and igniting over a spirit lamp or Bunsen burner. If less ash is found than usual, it indicates watering; if more than usual, chalk or other mineral adulterant has been employed. —*Journ. of App. Chem.*, *July*, 1874.

IS OZONE A CONCOMITANT OF THE OXIDATION OF ESSENTIAL OILS? *

By Charles T. Kingzett, F. C. S.

It is generally stated in books that the oxidation of oil of turpentine is attended with the production of ozone. Thus, in Vol. iii. of "Miller's Chemistry" it is stated, "Oil of turpentine gradually absorbs oxygen from the air, with the formation of a certain proportion of ozone;" and in Gmelin's work (Vol. xiv) it is written, "Oil of turpentine absorbs oxygen gas, acquiring new properties, and being converted into ozonized oil of turpentine."

Further, Lawes, Gilbert and Pugh have stated their belief that the supposed ozone existing in the vicinity of vegetation is due to the oxidation of hydrocarbons evolved by plants (*Chem. Soc. J.* [2], i, 1863, p. 100).

* Abstract of a paper read before the Chemical Society (*Journ. Chem. Soc.* [2], vol. xii, p. 511).

These statements, variously modified, have been so often repeated, that at last they are almost universally received as matters of facts. But although a vast amount of work has been done on this subject, especially by Schönbein, whose peculiar views on the matter are so well known, yet it cannot be said that the information is absolute. On the other hand, there has ever existed more or less doubt about the formation of ozone by the oxidation of such bodies as oil of turpentine.

It was with the view of acquiring more certain knowledge that the author made a series of experiments, the results of which are recorded in a paper recently read before the Chemical Society.

In commencing his experiments he first of all wished to get some definite notion as to the rate of absorption of oxygen by such bodies as oil of turpentine. For this purpose the liquid to be experimented upon was enclosed in a graduated tube containing air or oxygen. and the volume of the gas read from time to time. It was thus seen that ether, potassium-naphtha, oil of turpentine, and such bodies rapidly absorb oxygen from air or oxygen gas.

A few cubic centimetres of naphtha absorbed 25 c.c. of oxygen in 36 days, *i.e.*, the whole of the oxygen present. In yet another experiment with air, the turpentine oil (not in sunlight) absorbed 10·5 c.c. of gas during 14 days, that being the theoretical amount of oxygen in the air used.

Benzen showed no absorption of oxgen during 40 days. After this, similar experiments were made with the oils of bergamot, chamomile, caraway, cloves, juniper, lemon, thyme, capivi, cubebs, etc., etc.

The numbers given in the following table are not valuable as showing the absolute relative absorption of oxygen by the various substances, as some were conducted in sunshine whilst others were not.

Body used.	c.c. Oxygen absorbed.	No. of days.	=daily.
			c.c.
Oil of caraway..	18 (from oxygen)	6	3
" bergamot	12 "	4	3
" juniper	5 "	2	2·5
" cubebs	4 "	2	2
" lemon	16 "	13	1·2
Naphtha	25 "	33	·7
Oil of turpentine in sunshine (*a*)	220 "	6	36·6
" " " shade (*b*)	20 "	36	·6
" " " " (*c*)	10 (from air)	14	·75
" chamomile	6 (from oxygen)	11	·55
Ether (absolute) (*a*)	6 5 "	34	.19
Ether (absolute) (*b*)	6·5 (from air)	34	.19

These bodies, which had thus absorbed known amounts of oxygen, were agitated after the experiment with a mixed solution of potassium iodide and starch, when they invariably developed the well-known blue coloration more or less quickly. It is remarkable that this coloration does not take place immediately, as one might suppose would be the case if these bodies contained dissolved ozone.

On the other hand, in the case of the bergamot above given, where 12 c.c. of oxygen had been absorbed, there was absolutely no coloration with the potassium iodide and starch for some minutes, but it then gradually became of an opaque blue. The same remark applies to the other cases for the most part.

Evidently, therefore, an agent now existed in these oxidized oils, having properties like those possessed by ozone.

This fact was confirmed by taking the various bodies and placing them in tubes, together with a solution of potassium iodide, covering the mouths of the tubes with paper, and exposing to diffused daylight. Ether, naphtha, and turpentine and caraway oils gave almost immediately a yellow line between the two layers, showing either that they precontained the active agent, or quickly produced it. Time was required in all the other cases, in all of which affirmative results were obtained and rendered very evident by the addition of a solution of starch. Confirmation of these results was further obtained by placing the substances in tubes heated to 70° C. by means of a steam-bath, and spreading over the mouth of the tubes paper soaked in the potassic iodide starch mixture. But the best results were obtained by mixing in watch-glasses the substance to be tried and the test-solution.

As the oils of turpentine and caraway were found to give the most decided reactions, most of the subsequent experiments were confined to them. These experiments, which are recorded at length in the original paper, led the author to the conclusion that the active agent produced in the oxidation of these oils, although possessing properties similar in many respects to ozone, is not ozone or peroxide of hydrogen, but an oxidized principle derived from terpene ($C_{10}H_{16}$), namely, a monohydrated oxide of turpentine ($C_{10}H_{16}O{\cdot}H_2O$). The evidence upon which this conclusion is based is thus summarized:

When oil of turpentine is exposed to air or oxygen, in presence of moisture, it oxidizes, producing an agent which resembles ozone and peroxide of hydrogen, inasmuch as it gives a similar reaction with

potassium iodide. It further resembles peroxide of hydrogen, because it gives a violet coloration with chromic acid solution acidulated with sulphuric acid. It cannot, however, be peroxide of hydrogen, because, although it is somewhat soluble in water, the solution retains its properties after long continued boiling. It again resembles the aforementioned bodies by being totally destroyed by peroxide of manganese, but it also differs from them by having much more stable properties, resisting, to a certain extent, the action of sodium hyposulphite, and temperatures considerably above the boiling-point of water. Although destroyed by peroxide of manganese and other agents, the body again forms on exposure to air and moisture.

Lastly, the active agent so like to ozone is destroyed at the boiling-point of oil of turpentine, viz., 160°, and temperatures at which ozone and peroxide of hydrogen are not destroyed, when chloride of zinc is present. It is also destroyed by other dehydrating agents and by certain deoxidizing agents.

It is increased in amount by heating to 100° in presence of water, but in the oil which distils over at that temperature, there is none of it. Simple exposure to air is, however, alone necessary for its formation, and then it has the same properties as the parent oil.

Oil of turpentine is generally credited with the power of ozonizing the air in its vicinity, as well as with the power of dissolving a certain amount of the ozone to which its oxidation is supposed to give rise. This is because it has long been known that potassic iodide test-paper exposed to its vapor speedily indicates the well-known reaction of ozone; but this must now be explained by the oil evaporating and oxidizing to this peculiar product, for the oil which has been subjected to the action of peroxide of manganese or chloride of zinc, or any of the other means which have been pointed out as efficient in destroying the active principle, no longer has the power of so influencing the air in its vicinity, until it has been allowed to stand in contact with air (and moisture ?) for some time.

By experiments now in hand, the author hopes to be able to adduce more conclusive evidence as to the composition and constitution of the oxidized product of oil of turpentine, which possesses such interesting properties; also to show more precisely the circumstances under which it is produced, and to build it up synthetically from terpene or cymene, etc. For the present he can only hint at its

nature. His notion, as has already been stated, is, that it is $C_{10}H_{16}O \cdot H_2O$.

1. By the loss of H_2O_2 this becomes $C_{10}H_{16}$. Sulphuric acid causes, by its action upon the oxidized oil, the formation of a body which gives a violet coloration to chromic acid solution.

2. By the loss of $2H_2O$, the body becomes $C_{10}H_{14}$. Chloride of zinc destroys the active agent, and $C_{10}H_{14}$ (cymene) is a product of its action upon $C_{10}H_{16}O$.

3. By the loss of O it becomes $C_{10}H_{16} \cdot H_2O$. Deoxidizing bodies, as pyrogallate of potash, etc., also destroy the active agent. These data combine to show that the constitution of the body is as represented. It is also a fact that $C_{10}H_{16}O \cdot H_2O$ is somewhat soluble in water.—*Pharm. Journ. and Transactions, Aug.* 1, 1874.

CEYLON PRODUCTS.

In a description of Ceylon contained in the report of British Colonies at the Vienna Exhibition, prepared at the request of the British Commission, we find brief allusion to certain products of that Island which are of interest to the chemist and druggist. With regard to cinchona, we note that its cultivation in Ceylon was commenced about ten or eleven years ago. A number of young plants, carefully selected, were imported and set in the Botanical Gardens at Hakgala, at an elevation of about 6000 feet. The results, as an experiment, have been most satisfactory. The trees have already yielded a small supply of bark, which is said to have been valued in England at an exceedingly high rate. A large number of crossed species have been spontaneously developed, which, it is believed, will produce exceptionally fine bark. The coffee planters, too, have largely availed themselves of the gratuitous issue of young plants from the Government plantation, and have placed them in those positions on their estates which are unsuited for the growth of coffee. Sufficient success has been attained to justify sanguine hopes that an extended cultivation will be profitable, and that a large export business will spring up. The cultivation of vanilla does not appear to be very extensive, and no record can be found of the amount grown in or exported from, the colony. An excellent sample was sent to the Vienna Exhibition. Cinnamon is now exclusively and profitably grown, mainly in the neighborhood of Colombo, and is described as having somewhat the appearance, and being about the size, of the European laurel. Of late years, owing to the immense improvement in the preparation and cultivation of the spice, and to a largely increased demand at remunerative rates, there has been a much increased export from Ceylon, and there has been considerable

progress in the industry. The plant exhales no perfume, but the bruised leaf or bark has a powerful odor of the spice. By means of careful pruning, the plant can be made to grow the twigs or their branches free from knots, which yield what is called the pipe cinnamon, possessing a higher marketable value than sheet bark, which is peeled from the stem. The exportation of plumbago from Ceylon has also much increased during the past few years, and this is owing to the extensive European demand for crucibles. Crucibles made of plumbago, are said to have much greater power of resisting the high temperature employed in smelting than any other yet constructed. The raw material is found principally in underlying quartz in the south and southwest of Ceylon, and is worked by the natives under licenses from the Government. It is largely used in the preparation of what is called black-lead for polishing purposes; while a more recent application of it, and probably the most useful, is as a lubricant.—*Pharm. Journ. and Trans.*, *July* 18, 1874.

Pharmaceutical Colleges and Associations.

The British Pharmaceutical Conference met, at its eleventh annual meeting, for the first time in London, convening at the Hall of the Pharmaceutical Society of Great Britain, 17 Bloomsbury Square on Wednesday, August 5, and terminating on Saturday, August 8, with an excursion down the valley of the Thames by train, and pleasure barges to Maidenhead. The result of this meeting is briefly stated in an editorial published in the *Pharmaceutical Journal* of August 8th, and from which we take the following synopsis:

"Whether for the number and quality of the papers, or the interesting discussions that have followed the reading of them, the meeting of 1874 has been a success, the only drawback having been that the number of members attending it have hardly equalled the hospitable hopes of the Local Committee. The interest with which the proceedings of the Conference are watched by pharmacists outside Great Britain was demonstrated by the presence of Dr. de Vrij, from the Hague, Colonel Forney and Mr. Dobbins from the United States, M. Adrian and M. Gallois from Paris, and Dr. Frazer and Professor Tichborne from Dublin.

"The Conversazione was attended by about three hundred and fifty gentlemen, who found ample occupation in examining the chemical, pharmaceutical, microscopical, botanical, and other articles in the exhibition, or in witnessing the demonstration by Mr. Davies of Mr. Crooke's experiments to show the attractive and repellant properties of light and radiant heat.

"On Thursday the General Meeting of the Conference auspiciously commenced by the announcement that five hundred members had been elected by the Executive Committee the previous day. The President's address was confined to topics of a political nature, and will doubtless obtain the careful consideration of all pharmacists, as containing the opinions of so experienced a leader of their body.

"The first paper was read by Dr. de Vrij, and described a new method of estimating the pharmaceutic value of cinchona barks, by which not only the

alkaloids, but also other active substances, particularly the cinchotannic acid, may be readily determined by the pharmacist himself. At the invitation of the President, Mr. Broughton contributed some important observations as to the state in which the alkaloids exist in the barks (viz., one-fifth quinate, four-fifths tannate), furnishing a key to the principle best applicable for their extraction. He also mentioned the practice in India, of employing the combined alkaloids. In the discussion which followed, Mr. Umney, and Mr. Giles criticized severely the liquid extract of Cinchona of the B. P., the former recommending percolation with proof spirit (product to contain 1 in 1).

"Prof. Flückiger contributed two papers: in one he reported that he had determined the deposit from essential oil of nutmegs, known generally as myristicon, to be really myristic acid; in the other he described the chemistry of elemi.

"Dr. de Vrij then gave the result of his experience of the anthelmintic virtues of pomegranate root-bark.

"It was appropriate that it should have fallen to the lot of the President to present the first of the reports of investigations, towards the expenses of which grants have been made by the Conference from the funds entrusted to it by Mr. Thomas Hyde Hills. The subject was a continuation of his researches upon the aconite bases. Mr. Groves having prepared specimens of the alkaloids, the determination of their chemical constitution was undertaken by Dr. C. R. A. Wright, who arrived at the conclusion that aconitia, pseudaconitia, and another body which Mr. Groves at first thought to be Mr. Broughton's atisine, are polymerides. Mr. Broughton has, however, since stated that he is certain that the body to which he has given the name of atisine is not of the same centesimal composition as aconitia, so that Mr. Groves' alkaloid may prove to be a fresh discovery.

"This report was followed by another that had been entrusted to Mr. A. W. Gerrard, on the official plasters, which was an able criticism of the present formula, and contained several suggestions for their improvement; Mr. Gerrard was also able to contribute to the information of many present by a dexterous demonstration of the art of plaster spreading.

"The use of oleic acid in pharmacy was the subject of a valuable paper by Professor Tichborne, in which he advocated the substitution of oleic acid for soap in the preparation of the liniments of the Pharmacopœia, and he illustrated his argument by the preparation of Linimentum Ammoniæ, Lin. Potassii Iodidi c. Sapone, Lin. Saponis, and Lin. Terebinthinæ. Objection was raised as to the difficulty of obtaining a sufficiently pure oleic acid, but Mr. Tichborne said that it could be obtained with facility, and even if this be not at present the case, there can be little doubt that a supply would follow the demand.

"Mr. Stoddart then described a modification of Liebig's process for the estimation of phosphoric acid, and afterwards practically exhibited the method of estimating the quality of milk recently suggested by Mr. Horsley, of Cheltenham, which consists in treating the milk in long tubes with ether and water by which means, the casein, salts and butter fat are separated in distinct layers. This process he also proposed to extend to the analysis of butter,

showing by experiment, that lard, for instance, in the cold, was not wholly soluble in ether, and therefore separated from the normal butter fat. The perfection of this test was, however, questioned, especially by Dr. Redwood, who, admitting that the test might detect a clumsy adulteration with lard or suet, was of opinion that there was no proof that it would expose a skilful admixture of fats more nearly approaching butter in its physical character.

"This concluded the business of the first day's meeting. In the evening, the members dined together at the Cannon Street Hotel

"On Friday, the first paper read was a 'Note on Cortex Rhamni Frangulæ," by Mr. H. C. Baildon. In continuation of his own and other previous remarks on this bark, Mr. Baildon urges the importance of selecting *good samples, i.e.*, corresponding to such a description as that of the German Pharmacopœia, and for administration he reccommends concentrated decoction (or liquid extract); also a concentrated tincture. The paper led to the expression of a considerable amount of personal testimony to the value of black alder bark as an aperient.

"Mr. Louis Siebold mentioned the important fact that the concentrated Liq. Ammon. Acetatis exerts a very evident solvent power on any lead which may be present in the glass vessel containing it, and suggested the propriety of keeping such solutions in bottles of Bohemian glass.

"In a 'Note on Scammony,' by Mr. T. Greenish, the use of the microscope was recommended in preference to iodine for examining starch present in scammony, to ascertain whether it was derived accidentally from the scammony root, or from wheat, etc.; the shapes of the granules, and especially of the hilum, being quite characteristic. He has found samples of *lump* virgin scammony invariably free from all starches, whilst every sample *in powder* as uniformly contained scammony starch, and some of them wheat starch in addition, which he attributes to the powder being prepared from the smaller fragments contained in cases of mixed qualities of the drug.

"Hydrocyanic acid furnished the topic of not less than four papers. Mr. Barnard S. Proctor recorded the results of some experiments having for their object the discovery of a process for extemporaneous preparations of official acid, and also of a solvent that would diminish the variation in strength dependent on evaporation. Of three solvents,—water, alcohol, and ether,—the latter he found to maintain most nearly its percentage of hydrocyanic acid. Two substitutes for the B. P. hydrocyanic acid were discussed by Mr. W. A. Shenstone, namely, the double cyanide of zinc and potassium proposed by Mr. Towerzey, and the hydrocyanic acid (one-tenth of B. P. strength), proposed by Dr. Tilden. Experiments by Mr. Shenstone indicates that acid of 0·2 per cent. suffers trifling (if any) loss from volatilization or decomposition. Mr. Shenstone also found solutions of the double cyanide perfectly stable. He did not, however, approve of its substitution for the B. P. preparation, but he thought the 0·2 per cent. acid would be legitimate. Mr. J. Williams stated that he had found that 20 per cent. of glycerin preserves acid up to the strength of about 5 per cent. This application of glycerin was suggested by the knowledge of its effectiveness in the case of solution of sulphuretted hydrogen.

"Mr. L. Siebold had found that a dilute acid 0·1 per cent. ♏xx ♏j B.P. does not deteriorate much in one month in an 8-oz. bottle in daily use; in unopened bottles it will keep at least three months. He also gave a useful caution to inexperienced chemists when estimating the strength of hydrocyanic acid by Liebig's (nitrate silver) method, that alkalinity to test paper is not necessarily an indication that sufficient alkali has been added.

"A contribution to the growing literature respecting the administration of phosphorus was made by Mr. Williams, who prefers for that purpose a solution in alcohol and glycerin, and is of opinion that many of the preparations used and supposed to contain a certain amount of phosphorus, would, if carefully examined, prove to contain it in a more or less oxidized condition.

"We must content ourselves with a bare enumeration of the other papers. Mr. Barton expressed a preference for the direct treatment of sarsaparilla root with spirit in larger proportion, in the preparation of extract. Mr. Haffenden contributed a paper on the confections of pharmacy; Mr. Muir on Potable Water, and its Contamination in House Cisterns, and Mr. Daniels on the Syrups of the Phosphates. Mr. H. Groves, of Florence, sent some interesting information respecting the medicinal plants in use among the Tuscans, and Mr. Hunt added to our knowledge of the pharmacy of the Flowery Land. Prof. C. R. A. Wright sent two papers; one 'on the Essential Oils of Wormwood, Citronella, and Cajeput,' and the other a continuation of his researches on the opium alkaloids. Mr. E. Smith suggested a method for the recovery of iodine from the waste in the preparation of iodoform. Mr. W. E. Heathfield sent some notes on the extracts of aconite, belladonna, hemlock, henbane and colchicum, and Mr. Schacht took the opportunity of explaining the scope of some experiments he is making to ascertain the relative proportions of conia present in the succus and extract of conium. The last paper read was by the President, and described his experience in the preparation of trimethylamin from the skate.

"Nothing now remained to be done but to pass the usual vote of thanks, to elect the officers, and decide the place of meeting for the ensueing year. It was resolved to meet at Bristol, and again under the presidency of Mr. T. B. Groves."

Pharmaceutical Society of Paris.—At the meeting held August 5th, M. Boudet presiding, M. P. Vigier proposed an argillaceous dressing for wounds, composed of 100 parts of fine humid clay and 50 parts of glycerin; the advantages claimed for it are that it adheres well to the skin, does not spoil and is readily washed off with water.

M. Guichard exhibited a dropping glass, constructed somewhat like that proposed by M. Lebaigne, but having a lateral aperature through which it may be completely emptied; the aperture is made of a size so that the drops of distilled water weigh five centigrams.

Fourth International Pharmaceutical Congress.—The pharmaceutical journals of England, France and Germany, as far as received up to the moment

when we are compelled to go to press, contain but meagre accounts of the transactions of this assemblage at St. Petersburg. The following has been culled from the different publications, and will, if possible, be followed, in our next issue, by a more extended account.

Besides the pharmacists of St. Petersburg, there were delegates present from Prague, two; Moscow, three; Riga, one; Odessa, one; Kasan, one; England, two; Austria, two; Denmark, two, and France, one. It will be observed that neither Norway, Sweden, Germany, Holland, Belgium, nor the States of Southern Europe, were represented. Mr. A. Von Waldheim (Vienna) was elected President, Messrs. Madson (Copenhagen) and Trapp (St. Petersburg) Vice-Presidents, and Messrs. Méhu (Paris), Sutton (London), Janauscheck (Prague), and Rennard (St. Petersburg), Secretaries. All the delegates, with the exception of those from England and France, speaking German with facility, that language was adopted as the "business language."

Questions 1, 2 and 4 were remitted to the consideration of Committees, while question 3 (see page 205 of our April number) was forthwith discussed and disposed of by the following resolution, adopted unanimously:

It is very desirable that the professorships of pharmacy should be held by pharmacists, and it is further desirable that, where circumstances will allow, there should be two chairs, one for materia medica and one for pharmaceutical chemistry.

The reports of the Committees were discussed at the second and third sessions and the opinion of the Congress expressed in resolutions, declaring—

Ad. 1. That the assistant should be held responsible for all errors committed by him in the laboratory or in the store; that the proprietor be responsible for the purity of the drugs, for the management of the business, and for the errors of his apprentices.

Ad. 2. That the inspection of pharmacies should be conducted by two experts qualified by the State: one of whom, who has to examine the medicaments and the general business management, should be an apothecary, actively engaged in business; and that it is desirable that he should be elected by the apothecaries.

Ad. 4. The Universal Pharmacopœia presented by Dr. Méhu in the name of the Paris Pharmaceutical Society, was referred to a Committee, charged with examining the same and then sending it to all pharmaceutical societies for examination and report.

The place of meeting of the fifth Congress, for which Philadelphia and London have been proposed, has not yet been determined on.

Editorial Department.

The Twenty-second Annual Meeting of the American Pharmaceutical Association, of the Proceedings of which we give a full account elsewhere, has been quite successful, in point of numbers as well as in regard to the papers

read there. The attendance from the Atlantic States has been larger than was at first anticipated, in consequence of the refusal of the great trunk railroad lines to grant a reduction of fare. But several cities and sections, from which a goodly number of members had been expected, were but slimly or not at all represented. This may be in part accounted for by the depression of business during the last year, and also, to some extent, by the industrial and agricultural expositions which were open at that time in four or five of the Western cities. The Southern States, as usual, had sent but few representatives, owing to the sickness usually prevailing in many places during the early part of September. It is to be regretted that there does not appear to be any period of the year, which would suit nearly all the pharmacists in different parts of the country equally well, for leaving their business to attend these important gatherings, exchange views with their brethren from other localities, and enjoy some recreation from the confining labors during the past year. In some, perhaps in many instances, our friends might well afford to cut loose about this time from the daily routine of business, with the view of assisting in the work before the Association, and forming or renewing an acquaintance or friendship with their *confrères* from distant places.

According to the programme, as published on page 395 of this Journal, over forty members, including ladies, left Baltimore and Washington on the morning of Saturday, September 5th, a portion of them going as far as Deer Park, situated upon the summit plateau of Big Savage Mountain, while another portion went to Grafton, with its picturesque surroundings, and still another portion visited Marietta, to examine the mounds, erected there, as in some other Western localities, by a pre historic race. The majority of these parties, reënforced by other members, arrived together in Cincinnati, received the kind attentions of some of their fellow-members, and proceeded to Louisville, where the pharmacists and druggists had made preparations for their comfort and entertainment.

A promenade concert and hop was given in honor of the Association, in the upper concert room of Liederkranz Hall, on Wednesday evening, September 9th. The visiting ladies were invited to a drive through the city, and the most interesting points in the neighborhood, on Thursday afternoon. Friday afternoon was set apart for a visit to the Star Plate Glass Works, New Albany, Ind., the only works in the United States making polished plate glass. On Friday evening the members called upon Prof. J. Lawrence Smith, and spent a pleasant and profitable hour in examining his handsome and well-appointed laboratory and fine collections, and in conversation with prominent citizens and savans of Louisville. The invitation of the Liederkranz Society for this evening was likewise taken advantage of by many members and their ladies, who visited Woodland Garden to enjoy the vocal and instrumental concert, many remaining to participate in the dancing, which was kept up for some hours.

At almost all hours of the day and evening members and their ladies could be seen at the Industrial Exposition, generously opened to them free of charge by the managers. The badges, which for the first time had been provided for the attendants at this meeting, served not merely for the members to recognize

each other, but they were likewise the means of opening many places of interest which would have otherwise been accessible with difficulty.

About seventy-five members, including the ladies, participated in the excursion to Mammoth Cave, for which round trip tickets had been secured at $5.50, besides a reduction of 25 per cent. from the board and the entrance fee at the Cave. We have been informed by Col. Miller, the Superintendent of the Cave, that, with the exception of a party of eighty-four, consisting of students accompanied by their professors, this party of the American Pharmaceutical Association was the largest one that has visited this subterranean wonder. Sixty-six persons entered Mammoth Cave on Saturday, Sept. 12th, and, passing over the short route, visited Gorin's dome, the bottomless pit, the giant's coffin, the star chamber, &c., spending four to five hours in the Cave. On the following day, sixty of the party travelled over the long route, remaining under ground between ten and eleven hours, passing through Fat man's misery crossing the river Styx, lake Lethe, and, by boats, Echo river, climbing the Rocky mountains to take a look at the Dismal Hollow, and, at the end of the Cave, viewing the Maelstrom at the bottom of a pit one hundred and ninety feet deep. The grandeur of these subterranean corridors and rotundas, with their hanging and fallen rocks, their ancient now dry water-courses, their still rivers and ponds, their monotonous cascades, their innumerable stalactites and stalagmites of all conceivable forms, their quietness and impenetrable darkness, their eyeless fish and crawfish, is beyond description, and well repaid the long journey.

On the homeward trip from the Mammoth Cave the party scattered, doubtless well pleased with Louisville, the beautiful "City of the Falls," and the hospitality of which they had been the recipients. The twenty-second meeting of the American Pharmaceutical Association is over, and the work for the twenty-third meeting, in Boston, must soon commence.

Notes on the Pharmaceutical Exhibition of Louisville.—The following from the pen of Dr. A. W. Miller, contains so many timely suggestions and observations, that we prefer to give his "notes" in place of enumerating to our readers the articles which were placed on exhibition.

In accordance with the programme of the Local Secretary, the lower hall of the Liederkranz building had been specially arranged and decorated for this display. The room was peculiarly well suited for the purpose, as it was handsomely fitted up, and possessed sufficient altitude, an ample amount of space and an abundance of light. Being situated in the rear of the building, the disagreeable dust and unharmonious noise of the street were alike avoided. The local committee had been untiring in their efforts to assist the exhibitors by all means in their power. Prof. Scheffer, in particular, earned the sincere thanks of many of the representatives of Eastern houses.

The numerous Industrial Expositions of the West usually present at one glance so many heterogeneous elements, which bear no particular relation to each other, and which are but imperfectly classified, that the general effect becomes quite confusing, if not actually painful. In this respect the Pharma-

ceutical Exhibition furnished an agreeable contrast by its chaste and tasteful arrangements, which materially facilitated the convenient inspection or careful study of all the various articles exposed. There was just a sufficient number of goods displayed to fill the room comfortably, without in the least crowding or overloading it. A fine floral collection of ornamental foliage plants in the centre of the room contributed in no small degree to the production of a very elegant and effective *tout ensemble.*

Perhaps the most noteworthy demerit of the last exhibition was the paucity of novelties in all its various branches. Our leading manufacturers appear to content themselves with showing nearly the same line of their goods year after year, with very trifling variations. We would suggest to these to vary their routine by exhibiting models of apparatus used in making any of their chemicals, together with samples of the crude drugs and their subsequent stages of manufacture. The actual production of a single important chemical in the exhibition hall would be very sure to attract infinite more attention than the most lavish and elaborate display of finished products.

The Louisville druggists deserve considerable credit for the exhibition of three important living botanical specimens, namely, the *Eucalyptus globulus* of Australia, the Chinese Ramie plant, *Boehmeria tenacissima*, which furnishes a valuable textile fibre, and the *Sesamum orientale* or Benne plant.

According to the decision of the local journals, Messrs. G. Mallinckrodt & Co., of St. Louis, made the finest display of chemicals in over 200 varieties. The most prominent object of admiration was a magnificent specimen of purified metallic bismuth, which afforded an excellent opportunity of studying the very peculiar crystalline form of this metal. Most of the crystals were rhombohedra arranged like inverted terraces in the manner of a square amphitheatre, but a few of them consisted of concentric rectangles, resembling the pattern known among ladies as the walls of Troy.

Messrs. McKesson & Robbins had sent along with their other goods an herbarium of 104 specimens, comprising the greater portion of the German officinal plants, which were very neatly mounted, and furnished with printed labels, giving their pharmaceutical, botanical and German names, and also designating the officinal portion and the flowering season. The representative of the house stated that a number of these herbaria had been specially imported for sale, and that they were offered at the reasonable rate of twelve dollars each. The idea seems to be a praiseworthy one, for obvious reasons; and we trust that it may prove to be an incentive to some of our American herbalists to prepare for sale, at moderate figures, complete herbaria of plants officinal in our own Pharmacopœia. It would be difficult for admiring lady friends to find more suitable presents than these for our graduates in pharmacy on the eventful commencement day. Certainly, every pharmacist, who makes any claim to thorough knowledge of his profession, should own such a collection.

Guarana, in rolls and powder, was exhibited. Also, gurjun balsam or oil, which resembles copaiba in appearance and consistence; the article on exhibition was possessed of an intensely disgusting odor, recalling that of putrefying cabbage.

Although patent and proprietary articles are excluded by the rules of the Association, we noticed quite an assortment of French preparations, which virtually belong to the same class. These were, however, excluded from future exhibitions, by a special resolution of the meeting.

The class of elixirs, which appear to be on the wane, was less numerously represented than formerly.

Wines and liquors were offered by a few firms in great variety. During a discussion on the subject of their exhibition and sampling, considerable disapprobation was expressed by a large number of the members present.

Messrs. B. O. & G. C. Wilson made their usual elaborate display of superbly dried herbs, flowers, etc. The entire assortment was presented by them to the Louisville College of Pharmacy, and must prove to be a desirable acquisition. We were greatly pleased with the accuracy and correctness of their labels—a subject on which so many of our other friends were deficient.

Since the close of the meeting, we have incidentally ascertained that one of our Cincinnati members is the fortunate owner of a valuable collection of Chinese drugs. While we regret exceedingly that we were not favored with the privilege of inspecting these in Louisville, we would respectfully call upon him to oblige us with their exhibition next year, in Boston, and to give us the benefit of whatever information he may have been able to collate concerning them by that period.

Bogus Pharmaceutical Diplomas.—We have, on several occasions, called attention to the traffic in bogus medical and other diplomas, which is carried on from Philadelphia, and which, notwithstanding the repeated exposures in this country and Europe, appears to be still in a very flourishing condition, numerous simpletons being found who are willing to expend their money in obtaining cheap honors. It is for the first time that we have learned that, from the same concern, pharmaceutical diplomas may be obtained on the same favorable terms, as the following letter, which was received at the office of the Mayor of Philadelphia, Sept. 24th, will show:

"Malaga, September 4th, 1874.

"*Hon. Mr. Stokley, Mayor of Philadelphia:*

"Sir,—I have in my possession two letters from Jersey, England, by a person styling himself 'Dr.' P. F. A. Van Der Vyver, to Mr. Manuel Perez, of this city, enclosing to him what purports to be a circular (printed) of 'The American University of Philadelphia, No. 514 Pine street ('*La Universidad de Filadelfia Amerique*') and offering for the sum of eight hundred pesetas, equivalent to $160 in American gold, to furnish a Diploma in Pharmacy of said University to the son of Mr. Perez, without the necessity of *his leaving Malaga*. And in a letter of the said 'Dr.' Van der Vyver, dated July 13th, 1874, he says he has sold and delivered to many persons in Spain and Portugal diplomas of the said 'University,' and they proved satisfactory.

"I have the pleasure, at the request of Mr. Perez, to invite your attention to this matter, and to request, if agreeable to you, that you communicate to me

the result of such investigations as you may cause to be made, and the character of the persons connected with this 'University.'

"I am, Sir, your obedient servant,

"A. M. Hancock, U. S. Consul."

A reply was sent, informing the Consul of the standing of the establishment referred to, and of the legal proceedings now pending against it. We have informed our readers of the latter just one year ago (see *Amer. Journ. Pharm.*, 1873, p. 476). Justice is proverbially slow; let us hope that it will be equally sure.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Gmelin-Kraut's Handbuch der Chemie, Anorganische Chemie. Sechste umgearbeitete Auflage. Heidelberg: Carl Winter's Universitäts-Buchhandlung.

We have just received, after considerable delay, numbers nine and ten of the third volume of this work, which bear the date 1873. The following has been published until now: Part I of Vol. I (numbers one, two and three), treating of general and physical chemistry, by Prof. A. Naumann; Part II of Vol. I (eight numbers), containing the non-metallic elements, by Profs. H. Ritter, of Hioga, Japan, and Carl Kraut, of Hannover; and Vol. III (ten numbers), by Prof. S. M. Jörgensen, of Copenhagen. This volume contains, as far as it has appeared, the metals, zinc, cadmium, tin, thallium, lead, iron, cobalt, nickel, copper and mercury. Every number sustains the opinion formed of the new edition of this great work on the appearance of the first few numbers (see *Amer. Journ. Pharm.*, 1872, January, p. 43). To those of our readers who are not yet in possession of Gmelin's Organic Chemistry, it will be welcome news to learn that the latest (fourth) German edition of it will be supplied by the publishers, until further notice, at the considerably reduced price of twenty-five thalers.

The Physiology of Man; designed to represent the existing state of physiolygical science, as applied to the functions of the human body. By Austin Flint, Jr., M. D., Professor of Physiology and Physiological Anatomy in the Bellevue Hospital Medical College, New York, etc. In five volumes. Vol. V. (with a general index to the five volumes) Special Senses; Generation. New York: D. Appleton & Co., 1874. Price, cloth $4.50; sheep $5.50.

This is the concluding volume of a work to which the author has devoted eleven years of study and research, and of which the preceding volumes have received the praise which is due to the careful experimenter, the close observer and the profound student. The volume before us bears the same characteristics of excellence in the judicious arrangement of the material, the clear and concise language, and the absence of unprofitable speculations. The author may verily indulge the hope "that he has written a book which may assist his fellow-workers, and interest not only the student and practitioner of medicine, but some others who desire to keep pace with the progress of natural science."

The first ten chapters of the volume are devoted to the special senses, of which *touch* and *smell* are treated in chapters I and II. The following four chapters treat of *vision* and the anatomy and physiology of the eye; then follow three chapters on *hearing*, the anatomy and functions of the auditory apparatus; and the tenth chapter, on the sense of *taste*, closes the first part of this volume.

The second part treats in nine chapters of generation, the organs and elements of generation, fecundation, embryonic development, development after birth, and death.

Not the least commendable portion of this volume is the exhaustive general index to the five volumes of the work.

Proceedings of the American Academy of Arts and Sciences. New Series Vol. I. (Whole Series Vol. IX.) From May, 1873, to May, 1874. Selected from the records. Boston: Press of John Wilson & Son, 1974. 8vo. pp. 367.

The following papers of this volume are particularly interesting to our readers: Notes on Compositæ and Characters of Certain Genera and Species, by Asa Gray. It is a continuation and conclusion of a paper by the same author published in the preceding volume and refers principally to the Californian species. A Revision of the North American Chenopodiaceæ by Sereno Watson—very interesting and important to the botanical student. Report of the Committee appointed to Memorialize the Legislature of the State of Massachusetts on the subject of Expert Testimony, by Emory Washburn. It is to be regretted that the Legislature did not adopt the suggestions of the Committee, according to which experts are to be appointed by the courts; such a course would certainly mark the beginning of a most necessary reform. A Singular Case of Corrosion of a Tin Tank, by S. P. Sharpless. It relates to the destruction of the block-tin lining of the water tank in the hotel at Collinsville, Conn.

Cocain, Veratria and Gelsemium. Toxicological Studies, by I. Ott, Easton, Pa. Philadelphia: Lindsay & Blakiston. 1874. pp. 66.

This contains descriptions of experiments, made with the articles named, upon rabbits, cats and dogs, also upon man, and from which the author concludes that coca and cocaina should be placed in the category of excitants, of which coffee is the chief example, and that coca increases the pulse and temperature, and dilates the pupil. In regard to veratria, it is inferred that the nerve does not participate in the prolongation of muscular contraction by that poison. Gelsemium is a respiratory poison, dilates the pupil and gradually depresses the temptrature.

On Strain and Over-action of the Heart. By J. M. DaCosta, M.D., Professor of Practice of Medicine in Jefferson Medical College, Philadelphia. Washington: Smithsonian Institution. 1874. 8vo, pp. 28.

This is the third of the "Toner Lectures," which have been instituted by Joseph M. Toner, M. D., who has placed in charge of a Board of Trustees,

consisting of the Secretary of the Smithsonian Institution, the Surgeon-Generals of the United States Army and Navy, and the President of the Medical Society of the District of Columbia, a fund, the interest of which is to be applied for at least two annual memoirs or essays relative to some branch of medical science, and containing some new truth fully established by experiment or observation. These lectures are published by the Smithsonian Institution in its "Miscellaneous Collections."

Address of Joseph M. Turner, M. D. Philadelphia: Collins, Printer. 1874. 8vo, pp. 20.

This is the annual address of the President of the American Medical Association, and was delivered at the meeting, held in Detroit, Mich., in May last.

Bulletin of the Bussey Institution (Jamaica Plain, Boston). Cambridge: University Press. 1874. 8vo, pp 80.

The pamphlet gives a historical sketch of this institution. which was established under the trusts created by the will of Benj. Bussey, of Roxbury, Mass., bearing date July 30th, 1835. The following papers are contained in the publication before us: By Prof. D. D. Slade, on the humane destruction of animals; and, by Prof. F. H. Storer, Results obtained on examining some commercial fertilizers by way of analysis: Results obtained on analyzing several samples of "shorts" and "middlings," with remarks on the average composition of bran; on the agricultural value of the ashes of anthracite: and a portion of a Record of Trials of various Fertilizers.

Transactions of the Michigan State Medical Society for the Year 1874. Series II, Vol. VI. Lansing: W. S. George & Co, 1874. 8vo, pp. 269.

It contains the minutes, addresses and reports read at the eighth annual meeting, held at Coldwater May 6th.

Essentials of the Principles and Practice of Medicine. A handbook for students and practitioners. By Henry Hartshorne, A. M., M. D., Professor of Hygiene in the University of Pennsylvania, &c. Fourth edition, thoroughly revised, with 100 illustrations Philadelphia: Henry C. Lea, 1874. 12mo, pp. 548.

We have noticed the third edition of this work, three years ago (see *Amer. Journ. Pharm*, 1871, Nov., p. 527). The necessity of a new edition after so short a time is a sufficient guarantee of its usefulness. The general plan of the work has been partially modified, so as to embody the most important suggestions, as well as results of observations, presented in recent medical literature. For the first time, illustrations appear in this edition; they have been chosen with the view of elucidating a number of subjects of special importance and interest.

THE

AMERICAN JOURNAL OF PHARMACY.

NOVEMBER, 1874.

THE EXTRACT AND FLUID EXTRACT OF GUARANA, WITH GENERAL REMARKS ON PERCOLATION AND THE MANUFACTURE OF MEDICINAL EXTRACTS.

By J. B. Moore.

Paullinia has, within the last few years, attained considerable local popularity in some sections of our country, but it is little known to the great mass of the medical profession, especially in this city. It is better known, and has attracted more attention, and has been more extensively prescribed in the East and West than in any other part of the United States.

In consequence of its limited use in this city, it is a comparative stranger to many of our pharmacists.

There seems to be very unsettled views among physicians not only in regard to its physiological action and therapeutic application, but also in regard to the dose in which it should be administered. These important matters have not yet been satisfactorily determined.

Upon inquiry among my medical friends who have used guarana in their practice, I have received very conflicting reports of its therapeutic value. While some extol it highly, others condemn it as worthless and almost inert. Like all new remedies, it is simply in transit through the fiery ordeal of trial in the cure of almost every disease to which human flesh is heir. Therefore, we must expect it for a time to sustain an uncertain and variable reputation. It cannot be expected, no more than could bromide of potassium or the famous cundurango, to cure every malady in the whole catalogue of human ailments. It has, like all other remedies, its circumscribed application, and only those physicians who are guided in its use by wisdom and judgment will derive satisfactory results from its administration. After awhile its medical virtues will be determined and

established, and if it has any merit it will become popular in the few diseases for which its peculiar properties adapt it.

Judging from my knowledge of its active constituents, and from what I have been able to glean from published accounts of its medicinal virtues, I am led to believe that it is more especially in nervous and sick headache and in other disorders of the nervous system that physicians must look for the best effects from its employment.

Tonic properties are also ascribed to it, but these I should think were feeble, and the medicine would not be relied upon for these properties alone, especially when the physician has so many valuable and well established remedies of this class at his command. These properties, however, as associated with its astringency and other properties, may contribute to its efficiency in the treatment of diseases to which it is peculiarly adapted.

Some writers speak of it highly as a remedy in the diarrhœa of phthisis and also in idiopathic diarrhœa. The application of it to diseases of this character seems rather singular, and, I should think, of doubtful propriety, unless its use be restricted to chronic cases, inasmuch as it so closely resembles coffee, not only in physiological action, but also in its active constituents.

The strongly laxative tendency of coffee, especially when the bowels are in an already irritable condition, is well known to all; and to such an extent does this tendency exist that many judicious practitioners strictly inhibit its use in the existence of diarrhœa or other lax conditions of the bowels.

But, as *Paullinia* seems to contain considerable tannic acid, this may so modify its effects, and so control and qualify the action of its caffein, as to render its use admissible in recent cases, and may possibly make it a useful remedy in chronic disorders of this class.

But this is a matter that must be settled by the intelligent and observing physiologist and therapeutist. I merely have referred to the matter in order to awaken closer observation and to stimulate, on the part of physicians in their practice, a closer scrutiny into its effects in this class of diseases.

For all of us, both physicians and pharmacists, are liable at times to be led astray by the published experience of our professional brethren; and we thus sometimes take things for granted, which often prevents us from making any personal investigation; but the moment a doubt is raised in our minds, and we begin to observe and

investigate for ourselves, we often discover that we have been deceived and misled, and that "it is not all gold that glitters."

Unfortunately, physicians frequently make a great mistake in their experiments to test the effects of a remedy and to ascertain its true physiological action, by too often prescribing the remedy under trial associated with other active medicinal agents, and, so, effects are often credited to the new remedy that are due to those with which it is associated. To judge, with any degree of accuracy, of the effect of a remedy, it should be prescribed alone or with comparatively inert substances.

My friend, Dr. Wm. B. Atkinson, of this city, informs me that he has witnessed the most prompt and beneficial effects from the use of guarana in sick and nervous headache, in his practice.

I have occasionally received prescriptions for it in powder, for the last two or three years, but it was not until recently that I have had it prescribed in the form of fluid extract; and not having any of the latter on hand, and knowing of no published formula by which to make the fluid extract, I at once sent for it to several of our leading pharmacists, but could not obtain it. So, thinking that I might, perhaps, have future calls for it, I concluded it would be well for me to devise a formula and process for its preparation. The expensiveness of guarana, however, made it rather an uninviting subject for experiment; but as I was fortunate in my first conception of its character, and the proper strength of menstruum required for its exhaustion, I encountered but little difficulty in framing a suitable formula. And as there is, to my knowledge, no published formula for a fluid extract of guarana, I here present the one I have adopted, which I offer for the benefit of my professional brethren, who may be thus enabled to make the preparation for themselves, and thereby be able to insure its reliability, for this is doubly important in a new remedy, which is still the subject of experiment by the medical profession, to determine its physiological action.

R.	Pulv. Paulliniæ, ...	℥xvi troy,
	Alcohol. Fort.	
	Aquæ, ...	*āā* q. s.

Mix three measures of stronger alcohol with one of water, moisten the powder with the menstruum and pack it in a glass funnel prepared for percolation, and gradually pour the menstruum upon it, until one pint of tincture is obtained. Set this aside, in a shallow vessel, to

evaporate spontaneously to twelve fluidounces; continue the percolation with the same menstruum until two pints more of the tincture are obtained, or until the powder is exhausted. Evaporate this by means of a water-bath, at a temperature not exceeding 140°, to four fluidounces. Mix this with the reserved tincture and filter through paper.

This formula yields a perfectly reliable preparation. It is transparent, of a deep reddish-brown color (almost identical in appearance with the fluid extract of gentian), with a bitter, astringent, not unpleasant taste, leaving an after-taste on the palate strongly resembling that of coffee.

The menstruum employed in the above process is well calculated to thoroughly exhaust the drug of its virtues, and the proportion of spirit retained in the finished product holds in perfect solution all its soluble active matter. A sample of this fluid extract, made over three months ago, is still in excellent condition, showing no signs of change, and is entirely free from deposit.

In an emergency, a solid extract of guarana may be made by carefully concentrating the fluid extract, by means of a water-bath, to the proper consistence. But, as this medicine is likely to be often prescribed in the form of pills, a definite formula and process for making a solid extract should be made known. I therefore, after some experiments with perfectly satisfactory results, offer the following process, which affords a most excellent solid extract of the drug, unimpaired by process of preparation, if the directions given for its manufacture be observed:

R.	Pulv. Paulliniæ, ...	℥xvi troy
	Glycerinæ, ...	f℥ss,
	Alcohol. Fort.,	
	Aquæ, ...	*āā* q. s.

Mix three measures of stronger alcohol with one of water, moisten the powder with the menstruum and pack it in a glass funnel prepared for percolation, and gradually pour the menstruum upon it until one pint of tincture is obtained. Set this aside, in a shallow, open vessel, in a warm place. Continue the percolation with the same menstruum until two pints more of tincture are obtained, or until the drug is exhausted. Evaporate this by means of a water-bath, at a temperature not exceeding 140°, to a syrupy consistence. To this add the reserved portion and the glycerin, and continue the evapora-

tion, at a temperature not exceeding 120°, until the whole is reduced to the proper consistence.

During the concentration, in making this extract, the liquid should be stirred almost constantly, and especially is this necessary at the close of the process.

In the manufacture of all extracts, both solid and fluid, this important precaution of stirring during the evaporation should be observed as it is by the neglect of this that the products in such cases are so often injured by heat. When it is observed, the concentration proceeds more rapidly and satisfactorily, and the medicinal virtues of the drug under treatment thus enjoy a comparative immunity from the injurious influences of heat.

In making fluid extracts, when reserved portions are to be concentrated to a given point, by either artificial or spontaneous evaporation, preparatory to receiving the product of the remainder of the percolate, it is very important to see that the concentration does not proceed too far.

The evaporation should be closely watched, and the moment it has reached the desired point, the liquid should at once be transferred to a bottle and tightly corked, to await the product of the remainder of the process. The neglect of this apparently trifling point is often the cause of entire failure, or at least of great inconvenience, and not unfrequently leads to the production of imperfect and faulty preparations; as, owing to the uncertainty of the composition of the liquid after evaporation has once been permitted, its loss cannot be supplied with any degree of accuracy, especially when it is a liquid of a compound nature; such, for instance, as alcohol.

Formulas are in this way sometines blamed for imperfections when it is the carelessness or inattention of the operator that is at fault.

Much care is also necessary in the concentration of the *last* portion of the percolate in making fluid extracts; where the liquid to be evaported is a simple, as water, ether, chloroform, &c., the same care is not requisite to guard against excessive concentration, as the loss, in such cases, may be supplied by the addition of fresh portions of the respective liquids; nor is it so important even when alcohol is the liquid under treatment, if, in the operation, *all* of the alcohol is supposed to be expelled, because then water may be used to make up the loss, but if the spirit is to be only partially driven off, then care is absolutely necessary, for reasons just stated.

If the attempt be made, under such circumstances, to supply the waste occasioned by excessive evaporation, it may be the means of causing precipitation or other untoward result, when this portion of the percolate is added to the reserved portion. It is the object of the suggestions offered in this paper to impress indelibly, if possible, upon the minds of all inexperienced pharmacists the importance of these little points that are so essential to success in all pharmaceutical manipulations, yet which are so often overlooked, both by writers and teachers.

In writing upon subjects of this kind, I hold that the author should be as exhaustive as possible, for it is better, in such cases, to err on the side of prolixity than on that of brevity.

In this respect, Dr. Squibb is, I consider, a model, and should be an example to all who pretend to essay this kind of writing. For perspicuity, I think the doctor surpasses any writer in this country on practical pharmacy.

It is just this lack of explanatory detail in our Pharmacopœia that often deters many, especially young and inexperienced pharmacists, from making many of the preparations which they now buy ready-made.

The directions given for the manufacture of many of the preparations in our Pharmacopœia are entirely too brief and inexplicit. The U. S. Dispensatory, in some instances, supplies the deficiency to some extent.

If the directions in the Pharmacopœia were supposed to be addressed to scientific and experienced chemists and pharmacists, they would then be all that we could ask, but, unfortunately, they are not. I hope to see some improvement made in this respect in the next revision. It is but a small volume, and a slight increase in size would not render it unwieldy.

When a hydro-alcoholic liquid is to be evaporated, and it is important that all the spirituous portion should be expelled; for example, as was formerly the case in the manufacture of the fluid extract of ipecac,—this is only imperfectly accomplished when the liquid is not diligently stirred. The agitation throws fresh portions of the liquid constantly to the surface, and thus favors the liberation of the alcohol.

By the above process I obtained from nine hundred and sixty grains of powdered guarana, three hundred and thirty grains of ex-

tract of a good pill consistence, which is about one third, or thirty-three per cent. of its weight.

This yield was the result of a carefully-conducted experiment, in which no glycerin was used; although I do not think that the presence of the glycerin would influence the result much, as it simply takes the place of the water that would otherwise be retained in the extract to give it consistence.

This small proportion of glycerin, I think, will be sufficient to preserve the extract in good pill consistence for an almost indefinite period. I have a sample of extract of gelsemium made in January, 1869, and another of extract of opium, made about eighteen months ago, to which was added about the same proportion of glycerin, and these extracts are both to-day in as good condition as when first made.

Pharmacists would find that the addition of from five to ten per cent. of glycerin to all extracts which are prone to harden in keeping would save them the annoyance which is so frequently experienced in dispensing from this cause.

I have been in the habit, also, of incorporating a small portion of glycerin with blue mass just when it begins to stiffen and become inconvenient for forming into pills; I add just enough to restore it to a good pill condition.

The formulæ for our officinal solid extracts should receive some attention at the hands of the Committee when engaged in making the next revision of our Pharmacopœia, and among other amendments a small portion of glycerin should be directed in each, where its use would be deemed admissible and advantageous; so that not only pharmacists themselves, but that our wholesale manufacturers would have some guide in its use in making these preparations; for it is chiefly from these that the retail pharmacists derive their supply, as they prepare comparatively few themselves, though in the case of many of the extracts they might do so advantageously. In fact, there are a few of our solid extracts which I think every conscientious dispensing pharmacist should feel it obligatory upon himself to prepare, such, for instance, as rhubarb, cinchona, valerian, and others that might be mentioned. Some extracts, as obtained wholesale, I have often found entirely worthless.

The active constituents of some of these extracts, being very sensitive to heat and atmospheric influences, are very liable to be injured

in their preparation. It is not only at the close of the operation that some of these extracts may be rendered almost entirely inert by the decomposition or dissipation of their active principles, but there are well known reactions and changes, that are apt to occur at any stage of the process unless the greatest care and vigilance be observed in the regulation of temperature, etc., and especially is this the case with rhubarb and cinchona.

In large manufacturing establishments the same careful attention is not always given to the *little* details of the operation, which so greatly influence the quality of these products, that the retail pharmacist would give in his own laboratory.

There are, however, several of the narcotic extracts, such, for instance, as belladonna, hyoscyamus, etc., that are better obtained from abroad, owing to the foreign manufacturer having greater facilities for procuring the plants from which they are made in a more recent and better condition. I have generally found these extracts, as prepared by several of the more prominent English manufacturers, to be of uniformly good quality and reliable, seemingly to have been prepared with much care, and with a conscientious regard to their *excellence.*

This paper will not be complete until I shall have said something in regard to the dose of guarana, especially as there seem to be such conflicting views among medical men in this regard. I shall therefore endeavor to contribute my mite towards giving physicians who are unaccustomed to its use some guide in its administration.

In the United States Dispensatory, page 1670, edition 1870, guarana is directed to be given in substance, in the dose of from one to two drachms, while of the extract only from eight to ten grains are directed to be given, *during the day*, in pill form. Here seems to be a great and unaccountable disparity of dose between the extract and the powder. Either the dose of the powder is unnecessarily large or that of the extract is much too small. The dose in which the powder is directed I have no doubt is excessive. I should think that the proper dose of guarana, in substance, would be from fifteen to thirty grains.

Taking this as a basis, the dose of the fluid extract would be from fifteen minims to a half fluidrachm, or from about twenty-three to forty-five drops, as a fluidrachm was found to contain about ninety drops, as dropped from the lip of an ordinary six-ounce prescription

bottle; while the dose of the solid extract would be from five to ten grains, to be repeated every two, three or four hours, or three or four times a day, according to circumstances.

As there seem to be no established data to be taken as a guide in its administration, the above I should think would be a safe approximation to the proper dose. Physicians, of course, can increase or diminish the dose as their experience and the indications seem to suggest or demand. In this way, after a while, the proper dose may be more accurately determined.

The fluid extract of guarana is most agreeably administered mixed with simple syrup or the syrup of orange, in the proportion of from fifteen to thirty drops to a dessertspoonful of the vehicle.

In the treatment of various nervous affections, headaches, etc., I have no doubt that bromide of potassium, valerianate of ammonium, hydrate of chloral, valerian, morphia, belladonna, hyoscyamus, and tincture of hops will be found to be its best adjuncts and most eligible associates in prescription.

As syrup seems to be so pleasant a vehicle for guarana, I have no doubt a syrup of guarana would be a very desirable and useful preparation of the drug. I am therefore about commencing some experiments with the view of framing a suitable formula for such a preparation, and when I have succeeded I shall make it known to the readers of this journal.

I did think a tincture might also be desirable; but, as the dose of guarana in substance is quite large, and it requires so strongly alcoholic a menstruum for the solution of its active principle, the proportion of spirit in such a preparation would be objectionable, and would be injurious, therapeutically, in the class of diseases in which guarana would be likely to be most generally employed.

I will now resume my remarks and suggestions on percolation.

The powder in both the above formulæ, after being moistened for percolation, should be passed through a No. 20 sieve previously to packing, in order to break up any little lumps or aggregations that may be formed by the moisture.

I have, for years, been in the habit of treating almost all powders in this way after they have been moistened. The sieve not only finely and uniformly divides the powder again and restores it to the *most perfect* condition for packing, but it also removes any portions that are imperfectly powdered or any accidental impurities. (I, of course, refer here to powders obtained from commercial sources.)

Any one who has never tried this plan will be surprised at its advantages, and will sometimes be astonished at what the sieve will remove from powders that were apparently perfectly uniform and pure. Of course, the sieve employed for this purpose must not be too fine. For powders ranging from No. 40 to 80 about a No. 20 sieve will answer, and for coarser powders a coarser sieve in proportion.

I would recommend to inexperienced operators the plan I have adopted in percolating powdered substances with which I am not familiar, or which I have not treated for some time, which is to first moisten only a small portion of the powder, and pack it according to your best judgment, pour upon it a small portion of the menstruum, just sufficient to see how it enters the powder. The unabsorbed portion should then be returned to the remainder of the menstruum and the moistened powder should be returned to the remainder of the powder and thoroughly mixed with it before the addition of more menstruum. By this means we can generally form a correct idea how the whole of the powder should be packed. When operating with a pound or more of material, I have often made several of these preliminary trials with small portions of the powder. It is important, however, not to take too much of the powder for these experimental trials, or the moisture absorbed by it may make the reserved portion of the powder, when mixed with it, too moist for correct packing. This simple expedient may often save the operator much vexation, and even *entire failure*, in important operations in making fluid extracts.

It may be well for me, in this connection, to say a word also in regard to the manner of moistening powders preparatory to percolation, and of packing them when moistened.

Many pharmacists are in the habit of using a stick or other instrument with which to stir the powder as the menstruum is added, as though contact with the substance would prove fatal. By this dainty method of manipulation, powders are often very irregularly and imperfectly moistened, and a much longer time is consumed in the operation than would otherwise be required, resulting, in hot weather, in a considerable loss of menstruum by evaporation. In this way, too, the powder is often left full of lumps or masses, with some portions too moist, others too dry, and the whole in a bad condition for packing.

I would here remark that the fastidious man who is afraid of soiling his hands in the legitimate operations of the laboratory or the dispensing counter, would be quite as likely to make a good blacksmith as a good pharmacist. This is rather a homely simile, but it is nevertheless a very expressive one.

It is one of the essential points in successful percolation to have the powder in just the right condition for packing, both as regards state of moisture as well as state of division. Now this can be most thoroughly and satisfactorily accomplished by rubbing the powder between the hands, as the moisture is added, and working it not unlike the practical housewife does her flour in the first part of the process in making bread. This thorough intermixing and rubbing uniformly and equally distributes the moisture, and also, in a measure, breaks up the lumps and little aggregations which often form in such powders when moistened. It is only by means of this kind of treatment, and the subsequent use of the sieve, as recommended above, that powders can be brought to that perfectly uniform condition so essential for correct packing for percolation.

When operating with substances which contain much coloring matter, such as the cinchonas, red saunders, etc., it will be well for the operator to wear a pair of India rubber gloves, which I have found exceedingly useful to protect the hands in many operations of the laboratory.

In packing the powder in the percolator many use a packing stick; I have never found such an instrument satisfactory. When practicable, I always use the back of my fingers held firmly together; I can thus, by direct touch, know how much pressure I am using, and can regulate it with greater accuracy.

In packing, special attention should be given to the quantity of powder that is added to the percolator at a time, as well as to the amount of pressure used. In all ordinany operations the powder should be packed in small portions at a time, in strata of not more than from a quarter to a half inch in thickness. Many operators are in the habit of introducing the whole of the powder into the percolator at once, which I consider a great mistake, as then the mass receives the maximum of pressure at the very point at which it should receive the least, and that is at the top.

For several years I have adopted the plan, especially when operating with a large quantity of any substance, to gradually diminish the

pressure in packing as I near the top, as it is the lower portions of the powder that are likely to escape thorough exhaustion. The upper portions have always the advantage of contact with the menstruum before its solvent power has become enfeebled as it gradually does in its descent, so that when it reaches the extreme lower portions of the mass this power is almost entirely exhausted.

In cases where a preliminary maceration is considered necessary, and especially when the substance under treatment is of a tough, compact and impenetrable nature, I would recommend that that portion of the menstruum with which the powder is moistened be previously heated, which can be easily done in a few minutes in a stone or tin vessel, or in a bottle tightly corked and placed in a water-bath. The maceration should also be conducted in a warm place.

The power of heat to expand vegetable tissue when moist, and to augment the power and energy of solvents, is well known ; by its aid, when judiciously managed, the pharmacist may, in his manipulations, often greatly shorten tedious and lengthened processes.

It will generally be found necessary to moisten powders more that are intended for preliminary maceration than those intended for immediate percolation, otherwise they are apt, during the process, to become too dry for packing without afterwards being remoistened.

In the next number of this journal I shall present a paper, as a supplement or continuation of this, which will embrace comments upon the *new processes* of percolation in the manufacture of fluid extracts, especially the one adopted in the last revised edition of the U. S. Pharmacopœia ; I shall add, also, suggestions as to a new plan by which the next revision of the Pharmacopœia may be rendered more complete and thorough.

Philadelphia, October, 1874.

AROMATIC SULPHURIC ACID.

By S. Whittier.

This valued medicine, prepared according to the U. S. Pharmacopœia, has objections apparent to every physician and pharmaceutist.

1st. Its instability (requiring frequent filteration).

2d. The precipitate it gives when mixed with water.

Thinking it justifiable to attempt an improvement, avoiding any alteration that would impair the virtues or change the general character or appearance of the preparation (except its *objectionable* char-

acteristic), I devised the following formula, which, I believe, produces the *intended* preparation, *i. e.*, a diluted aromatic sulphuric acid of a dark-red color:

℞.	Sulph. Acid, C. P., . . .	troy, ℥vi. (6).
	Alcohol, 95 per cent., . . .	Oi. (1).
	m. s. a.	

When cool, add the following *flavoring* mixture:

R.	Oil Cinnamon, ...	gttv. (5).
	" Ginger, ...	gttvii. (7).
	Alcohol, ...	f℥xiv. (14). ℳ.

Afterward, add the following *coloring* mixture:

R.	Rosæ Gallicæ Petal.	℥i. (1).
	Aquæ Bullientis, ...	q. s.

Pour the boiling water on the rose leaves, and express ℥ii (2), then filter the entire preparation, and it will remain clear and unchangeable, and will mix with water without forming any precipitate.

As the propriety of using the *oils* may be questioned, I will quote from the U. S. Dispensatory on the properties of aromatic sulphuric acid:

"It must be viewed merely as sulphuric acid diluted with alcohol, and containing the essential *oils* of ginger and cinnamon."

The red-rose petals produce the desired *color.*

The proportion of oil was arrived at by an estimate of the average amount of oil contained in ginger and cinnamon.

By this method a very little water is introduced, displacing an equal bulk of alcohol; but if ninety-five per cent. of alcohol is used, this slight reduction will not admit of any *practical* objection.

It is over three years since I first prepared some aromatic sulphuric acid by this process, and, since then, I have submitted it to the use of several physicians. I have also carefully watched for any changes in it while standing in the store, and, finding only favorable results, I now submit the formula to the consideration of "whomsoever it may concern." *

Leominster, Mass., October, 1874.

*In the *American Journal of Pharmacy*, 1867, p. 201, Mr. Thos. N. Jamieson proposed to make aromatic sulphuric acid from oil of cinnamon, twelve minims; tincture of ginger, two fluidounces; alcohol, twenty-four fluidounces; sulphuric acid, six troyounces, and, if desirable, to color with saunders, or, preferably, with cudbear. Most modern Pharmacopœias direct this preparation to be made from the drugs, like the U. S. P.; it has been discontinued in some, as in the French Codex since 1866.—*Editor Amer. Jour. Phar.*

ADULTERATION OF BEESWAX*.

By Adolph W. Miller, M. D., Ph. D.

For a year or two past there has been offered in this market, and most probably elsewhere, an article termed "refined beeswax." It is unusually handsome in appearance and is generally represented as being strictly pure. It may be known by all of it being of a uniform bright-yellow color, entirely free from the sedimentary stratum of impurities ordinarily found in country wax. Its surface is clean and glossy having no foreign particles adhering to it. On account of these apparent merits, it is usually sold at an advance on the price of the regular article. All of this so-called refined beeswax, so far met with, had been moulded into the shape of oblong blocks of uniform size, measuring about fourteen inches in length, eight in width and three in thickness, tapering slightly upwards, and weighing about eight pounds on an average.

The melting point of the refined wax was found to be 146° F., that of pure wax being 156° and that of paraffin from 137° to 140°. Its specific gravity is ·929, placing it again intermediate between beeswax, ·963, and paraffin, ·871. Being thus induced to suspect the presence of the latter body, 100 grains of the refined article were heated for fifteen or twenty minutes with one ounce of sulphuric acid to about 350° F., several ounces of water were then added and after cooling, a sheet of paraffin weighing 80 grains was obtained, the loss representing the beeswax which had been carbonized by the acid. In order to verify the experiment, it was repeated with a composition of four parts paraffin to one of wax, when analogous results were obtained. 100 grains of pure paraffin, treated in the same manner, were recovered unchanged.

All the best test-books recommend fuming Nordhausen acid for this purpose, and state that an allowance must be made for a portion of paraffin charred by this acid. No one seems to have previously tried the ordinary commercial sulphuric acid, which was really found to be better adapted than the Nordhausen, as all the wax was carbonized and none of the paraffin affected.

The test is very readily applied, the only difficulty, and this a very trivial one, being the separation ofthe carbonaceous matter from the paraffin. It is most conveniently removed by repeatedly melting the

*Read at the Pharmaceutical Meeting October 20.

paraffin on water, at the same time gently stirring it, so that the black particles can subside.

There seems to be a considerable difference in the mode of contraction, while cooling, between beeswax and paraffin, and this may serve to detect the adulteration, at least when practiced to this extent. Blocks of paraffin are decidedly concave on the top, and the specimens of adulterated wax presented herewith will be observed to be more or less concave on top in proportion to the amount of paraffin which they contain. Pure beeswax appears to be level, the contraction acting in a horizontal direction and tending rather to the production of vertical fissures.

The optical behaviour is also different; pure wax is quite opaque, while this adulterated article is somewhat translucent, more particularly on the edges.

Although no injury is likely to result from this admixture, it is an evident fraud, as there is considerable difference in the commercial value of the two substances. It may be asked, in this connection, whether it is not time for the Pharmacopœia Committee to turn their attention to paraffin, since we have thus again detected it forcing its way into pharmacy under the garb of beeswax, cosmolin and vaselin.

ADULTERATED SERPENTARIA.

A short time ago, I received, from one of our wholesale drug houses, a lot of *Radix serpentariæ*, which, upon examination, was found to be largely adulterated with golden seal. This fraud has come under my notice twice within the past year, and, in the last instance, was too apparent for me to allow it to pass unnoticed. The condition in which *serpentaria* is found in the market is generally in a loose or unpressed state. Its long, twisted and knotted rootlets, together with a surplus amount of earth (a fact to be remembered), gives those persons a clear field to accomplish the adulteration; for, in case the golden seal should become broken during handling, it would expose the trick; but, the adhering earth becoming loosened and intermingled with the roots, the fraud is not so easily detected.

The rhizomes, with rootlets attached, of the golden seal that I found, were, by measurement, all the way from one quarter to one

inch in length, and rarely exceeding one-eighth of an inch in diameter, also averaging over two ounces to the pound of *serpentaria*.

Chicago, October 7, 1874. P. L. Milleman.

MEMOIR OF PROF. WILLIAM PROCTER, Jr.*

The paternal ancestry of William Procter, Jr., can be traced by the family records to the County of York, England. Thomas Procter, who appears to have been the great-great-grandfather of the subject of our memoir, was an officer in the army of Oliver Cromwell. His descendants were converts to the doctrines of George Fox, and at an early period are recorded as members of the religious Society of Friends. Isaac Procter, the father of William Procter, Jr., was a man of exemplary worth; and we deem it interesting, as a prelude to the memoir of the son, to give a short sketch of the life of so worthy a sire.

The father of Isaac Procter resided in the city of York; he was a man in humble circumstances, but always maintained a high character for sterling worth and integrity; his family connections were highly respectable, and their acquaintance was among those more favored in temporal circumstances; among these was Lindley Murray (the grammarian).

Isaac Procter, after such home instruction as his parents were able to give him, was sent to Ackworth School for one or two years, and afterwards he learned the trade of a carpenter. After a great fire in London, he went to that city for employment. While there, it is recorded of him, "that his best suit of clothes was stolen from his chamber closet a few weeks after his arrival—no small loss to one whose means were so limited. It was months before he could, with the utmost economy, replace them, and yet he conscientiously continued to attend the religious meetings of Friends, without reference to his appearance. It was full six months before a single individual shook hands with him, or took the least notice of him; so keenly did he feel his isolated state, that he then firmly resolved that should he ever be placed in a situation of influence, no one attending the meeting to which he belonged should have the like experience; a resolution fully carried out, as many can testify." He continued to live in London two or three years, when he returned to York. Soon after, a minister of the religious Society of Friends from America mak-

*Read at the Semi-annual Meeting September 28.

William Procter Jr

ing his home at the house of Lindley Murray, encouraged him to emigrate to America and come to Philadelphia in furtherance of his business pursuits. His mind appears to have been previously turned to a contemplation of this movement, and the advice given him decided the matter. Investing his savings in clothes and books, receiving many testimonials of kindness from relatives and friends, and letters of introduction, he bade farewell to family and home and embarked at London.

The ship William Penn, in which he came as a passenger, arrived in the Delaware in September, 1793. The yellow fever was then prevailing in Philadelphia, and the ship was not allowed to come up to the city. The passengers were landed at Gloucester, on the Jersey shore, after which the ship proceeded to New York to discharge her cargo.

Isaac Procter, with two companions, having left their trunks on the ship, proceeded on foot overland towards New York. An inland quarantine was at that time maintained to prevent the spread of the fever from Philadelphia.

On arriving at Haddonfield, they received the following passport:

Gloucester County State of New Jersey, ss.:

Personally came before me, the subscriber, one of the Justices of the Peace for the county aforesaid, Isaac Procter, housecarpenter: Thomas Finlinson, printer; and Joseph Crowder, bookbinder; who came passengers in the ship William Penn from London, and bound to Philadelphia; but on hearing of the malignant fever which at present rages in that city, the said ship came to anchor in the river Delaware, opposite the town of Gloucester, in the county aforesaid, from whence the above-named persons were, on the 27th ultimo, landed at the said town of Gloucester, and have not been at Philadelphia; and being desirous of travelling through this State to the city of New York, in order to settle themselves in their lawful vocation; and requiring my pass for that purpose, I therefore recommend the said Isaac Procter, Thomas Finlinson, and Joseph Crowder to the notice and safe protection of the inhabitants of this State, in the prosecution of their said intended journey.

Given under my hand and seal, at Haddonfield, in the county of Gloucester aforesaid, the fourteenth day of October, in the year of our Lord, one thousand seven hundred and ninety-three, (1793.)

(Signed), SAM'L KENARD. { SEAL. }

The travellers crossed the Delaware above the city, and proceeded to Germantown, thence to Morrisville, stopping on the first day of the week to attend Friends meeting at Fallsington. After meeting,

they were invited to dine with one of the Friends, and on this occasion, Isaac Procter met with the lady who afterwards became his wife.

On their pedestrian journey, several certificates were given to them, commending them to the notice of Friends. One, a circular letter from John Pemberton and Samuel Emlen, Jr., and one which we transcribe as follows:

"I recommend the bearer hereof, Isaac Procter, to the friendly notice of such persons as he may fall in with in the course of his journey to New York, he being lately arrived from London, and not having been in the city of Philadelphia, or in any infected place, may safely be suffered to pass without interruption.

"(Signed). NICHOLAS WALN.

"WALNVILLE, 5 miles from Philadelphia, (on high ground, and in a pure air,) Tenth mo. 2d, 1793."

On the same paper is written a recommendation to the like effect, signed by Robert Waln, dated at Frankford, 3d October, 1793.

On arriving in New York, they delivered their letters of introduction and soon found employment. In a short time, however, the yellow fever appeared in that city, and by its devastations, caused such alarm, that all who could, left the city.

One of the young men who boarded in the same house with him was taken with the fever; the mistress of the house was unwilling to remain, and on ascertaining that Isaac Procter would not leave the sick man, she showed him where to find articles which might be needed in the house, and took her departure. In the treatment of yellow fever at that time, warm drink only was allowed to the patient; this sufferer had been asking for cold water, which was strictly prohibited. "One evening, his medical attendant announced that he could not live longer than till morning. After the doctor's departure, the patient called Isaac Procter, and said, 'I heard every word the doctor said—I cannot live many hours—and now attend to my dying request: let me have as much cold water as I want.' 'Can thee drink a quart?' was asked. 'I will try!' was the answer. A quart mug was filled at the pump, and this, with nearly a tumblerful more, was disposed of. The pillows were then arranged, several blankets piled on, and the nurse sat down to watch the effect of the new prescription. In a short time the patient was sleeping, the first sleep for many nights. In the morning, the doctor came, not expecting to find him alive; he was still sleeping, the fever gone, and his bed wet

with perspiration. 'What have you been doing?' was asked. 'Giving him cold water,' was the reply. 'Well, you have saved his life; and if he does not die from prostration, may recover.' Light nourishment was ordered, which Isaac Procter had to prepare, and slowly strength was gained and health restored."

The fever still continuing in the city, and business prostrated, Isaac Procter sought employment in the country. The following winter he returned to New York, and was advised by John Murray and other friends to go to Baltimore and engage in the hardware business, his knowledge of tools and acquaintance with manufacturers in Manchester it was thought would favor such an undertaking. He accordingly ordered from England a stock needful for commencing business, and opened store on Market street, Baltimore, nearly opposite the Indian Queen Hotel, at the corner of Market and Hanover streets, a store which for many years was one of the most noted in the place. On leaving New York, a letter of introduction to Joseph Townsend, merchant in Baltimore, was given to him by Edmund Prior, from which we extract the following: "I have not known of any young man or Friend who has left us with whom Friends in general have parted with more affection and regret than with him. Thou wilt find him, I am persuaded, very deserving, and one who is possessed of such a manly and upright principle as will not allow him to take any little or mean advantage of any person whatever. His religious and guarded conduct has hitherto been very conspicuous with us, and I feel no apprehension that his leaving us will in any degree lessen it. The sympathy and friendly notice of his friends may strengthen and encourage him, in which I hope thine will not be wanting."

During the first year of business he became much discouraged by the difficulty of collecting his accounts; he was encouraged by his friends in New York to persevere, and to sell only for cash. Business prospering, he sent to England for his brother William and sister Sarah. His sister resided in the family of Edmund Prior, in New York, and William was placed at Burlington Boarding School, and subsequently was taken into the store of his brother.

On the 3d of Eleventh month, 1799, Isaac Procter was married to Rebecca Farquhar, at the Meeting-house at Fallsington, Pa., where he first met her six years previously. The first letter addressed to her on the subject of their union is in possession of the family, and

no one can read it without remarking its originality and candor, and the earnest desire of the writer that she whom he had chosen to share his portion in life should know all he could tell her regarding himself and prospects before making her decision.

Isaac Procter continued to reside in Baltimore to the time of his decease (by yellow fever) on the 7th day of Seventh month, 1820.

William Procter, Jr., (the junior being added to distinguish him from his uncle William) was the ninth and youngest child of Isaac and Rebecca Procter. He was born in the city of Baltimore on the 3d of Fifth month, 1817. When a little over three years of age he lost his father; unexpected claims were made upon the estate, which, although considered by the family unjust, were not resisted, and in consequence William was deprived of the liberal education which would have befitted a mind so well calculated to receive generous instruction, and would have given additional lustre to his mature years.

A companion of his boyhood* writes: "We were boys together from six to ten years of age at a Friends' school in Baltimore, taught by a lady of rare gifts and attainments. He was studious, gentle and companionable, and greatly beloved by his teachers and class-mates. His powers of observation were very early developed, and, as a child, nothing escaped his notice; he would interest other boys in stones that he would pick up in the streets, or in general subjects that would arrest his own mind. Mineralogy was his especial delight and study at this early age; while other boys would spend their weekly holiday in play, he would start early, with a lunch in his pocket and a steel hammer in his hand, and spend the whole day with a companion in the 'quarries' north of the city, or in the 'deep cuts' of the iron district, or at the 'Bare Hills.' The boys at school were always interested in his specimens, and many a young mineralogist received his taste and first lessons from this young teacher. My mind is full of pleasant and affectionate memories of him, for he was one of the brightest, purest and best boys I ever knew."

The husband of his eldest sister being disqualified by sickness from attending to his business—that of a cooper—William was at an early age taken from school to look after the affairs of his sister, and in the cooper shop he acquired a knowledge of tools and a dexterity in the use of them which served him many a useful turn in after life.

Through an intimacy existing between his mother and Tabitha

* Francis T. King of Baltimore.

Turnpenny of Philadelphia he visited that city with her, and became acquainted with Joseph Turnpenny, who was then learning the drug business with the late Henry M. Zollickoffer at the corner of Sixth and Pine streets. Visiting the store with his friend, he found subjects congenial to his taste, and his mind was soon turned to a determination to make that business his choice for the occupation of life. In 1831, at the age of fourteen, he entered the store of Henry M. Zollickoffer as an apprentice; after being duly installed, and looking through the store at the various objects calculated to attract the attention of a novice, his youthful fancy was struck with the adaptation of a large pewter syringe as an hydraulic engine; picking up a syringe, he repaired to the street, accompanied by a fellow apprentice, similarly equipped, and drawing their supply of ammunition from the gutter, they discharged the contents of their weapons at each other. William then returned to the store, laid away his syringe, and took from the shelf a copy of Henry's Chemistry, remarking, "This is just what I like." He was now fairly entered in the arena where the boy was to grow up to manhood and lay the foundation on which depended the superstructure of his after life. His father was taken from him when he was three years old, but the blessing of a loving mother, whose heart yearned toward her child, separated from her at a period in life when impressions are so readily made and with such difficulty effaced, attended him, and her words of council and advice were well heeded by a dutiful son. Soon after his apprenticeship, she writes to him—Seventh month 6th, 1831—"I must tell my dear William how rejoiced I was to receive his very nice letter, not a single blot or mistake in it; continue, my dear boy, to be thus particular in everything thee does (I mean to do everything well), and I have little doubt thee will succeed in giving satisfaction to all with whom thee may have to do. Let it be thy study to endeavor to please (thy employer) not only when in the store about thy every-day business, but in everything. There are many ways of gaining the affection of those we are with by being kind and obliging to all, and if thee can lend a hand of help in any way, no matter how small the act is, never be backward, but with cheerful alacrity be always ready; this will cost thee very little, and by a kind and courteous deportment in the store and out of it thou wilt gain the love and good will of all around thee. True politeness, my son, is a lovely accomplishment, but above all, never, never equivocate to screen thyself from censure, but if thou shouldst get into any difficulty be open and candid. Let honesty and integrity

be visible in all thy actions, and thus, my son, I think, thou wilt never want a friend in man, and thou wilt have a friend in thy Heavenly Father, who can, and will, if thou love Him as thou ought, do more for thee than all the world beside. Therefore, my dear boy, 'seek him now in the days of thy youth;' it is never too early to begin. There is another point on which I wish to remark—that of keeping, everything thee may ever know relative to thy master's business entirely within thy own breast, sometimes by tattling or telling little matters to others it has often been a cause of a great deal of mischief and uneasiness, if not unhappiness; therefore thou wilt be guarded on this subject, never trust even thy own dear friends with anything relative to thy employer's business which thou might suppose he would not be willing for everybody to know; and always stand open to reproof, I have no doubt, if necessary, it will be administered in meekness and in love."

The letter from which we have made this abstract, so replete with wisdom, is found among the letters which he preserved of that period. Those who have been favored with an intimate acquaintance with William Procter, Jr., can testify that the goodly counsels of a Christian mother were received into good ground, and brought forth goodly fruit.

From 1831 to 1836, he was quietly pursuing his duties as an apprentice, residing in the family of Henry M. Zollickoffer, his employer, endearing himself to all by his cheerfulness, brightness and alacrity in all his duties. In 1836, he commenced a diary. In one of the early entries of this year, we find he records the death of his mother, at the age of sixty-three years. He says, "I have indeed lost another and only parent, who has watched over me with truly parental care and tenderness. All my hopes of repaying her unceasing kindness are now at an end, and all my dreams of pleasure about the days when I should become a corner-stone to her, have vanished forever."

In March, 1837, he passed a successful examination as a candidate for the diploma of the Philadelphia College of Pharmacy. The subject of his thesis was "Lobelia Inflata," a paper of great merit, in which he demonstrates the presence of an alkaloid, lobelina, on which the medical activity of the plant depends.

In May, 1840, he was elected a resident member of the College, and from that period we find the volumes of the *American Journal*

of Pharmacy containing many contributions from his pen; of these, we shall have occasion to speak, in reviewing his life as an author and investigator.

Continuing unostentatiously in his position at Sixth and Pine streets, we find his mind keenly sensible to the deficiencies of his early education, and striving, by a diligent course of study and reading, to acquire a knowledge of the subjects kindred to his profession. His habit was to rise early, and devote the morning hours to his self-culture. Turner's Chemistry, Ure's Dictionary and Dalton's Chemistry appear to have been text-books which he carefully perused. His custom was to keep notes of his reading, and indicate by signs whether a particular subject had been pursued to the satisfaction of his mind, or whether farther examination was desirable. His reading was attended with experiments in pneumatic chemistry, and an examination of the properties of the elementary substances. Electricity, galvanism and electro-magnetism were attractive branches to him, at the time when Davy and Faraday were opening the portals which lead to a knowledge of these once mysterious agents of nature. He attended lectures given by Drs. Hare, Mitchell and Bache, in the winter of 1840, and expressed his gratification with Dr. Hare's experiments on electricity, and the solidification of carbonic acid, by Dr. Mitchell. He writes in his diary, "I obtained a piece of solid carbonic acid, and, returning home, repeated Dr. Mitchell's experiments on freezing mercury, my thermometer, after falling to —40°, suddenly contracted, and was frozen." He also constructed an electro-magnet, and was pleased to find it capable of supporting a one-fourth pound weight. A table blowpipe was also a piece of his mechanism, to enable him to construct apparatus of glass. Alluding to the lectures of Dr. Bache, he records, "Dr. Bache deserves the greatest credit for the considerate manner in which he discharges his duty to his students."

Nine years had now passed since he entered the store as an apprentice, and he was in his twenty-third year; an offer made to him to enter into a chemical works in Baltimore was declined, and his engagement with Henry M. Zollickoffer renewed. His leisure time was now divided between literary and scientific pursuits. His vacations, in occasional journeys for recreation and improvement. One note-book gives an account of a trip to Washington, and the country bordering the upper Potomac; another was to Ohio, returning by Niagara Falls; another by sea to Boston.

In 1841, he accepted the position as secretary to the committee on revision of the Pharmacopœia, and made numerous experiments for the committee; chief of which were on the production of ether, and Hoffman's anodyne. His first experiments on ether, he records as failures; but says, "I have got on the track to obtain a good article of Hoffman's anodyne."

The years 1842 and 1843, continued his engagement at Sixth and Pine streets. His leisure hours were improved by continuing his study of chemistry, taking up also botany, and learning the French language. General literature received considerable attention from him during this period. The Life of Washington, Johnson's Life, Alison's History of Europe, and moral philosophy, are recorded as forming part of his reading. In 1842, he made a journey through central Pennsylvania to Pittsburgh, continuing westward as far as Cleveland. He returned by the way of the lakes to Niagara, then through the lake district of New York, and home, by the way of Elmira and Williamsport.

In February, 1844, he purchased the property at the southwest corner of Ninth and Lombard streets, and commenced making alterations to render it suitable for a store.

We cannot do better than give his own recorded words at this important period, when about to embark in life on his own account: "I am about to leave Sixth and Pine streets, after so long a residence. What singular events occur! Little did such a prospect appear probable some years ago. Steadiness and calmness of mind, how important to the proper appreciation of life! This I daily become more convinced of, and find cause to note the want of it in my own case. Reflection steadily and calmly directed to moral and intellectual improvement, with all the rigor of justice, and all the affection of mercy, how few can truly govern themselves! I have made little progress in this all-important power, and have too frequent cause to regret acts of indiscretion and weakness."

On the 12th of May, 1844, he opened store, and was behind his own counter. Long accustomed to the routine of an old established business, the uncertainty of success in his new position, and the trials which assail the mind while waiting for some indication of prosperity, *he* did not escape. Three months after opening his store, he writes, "It has been a time of singular discomfort to me, the anxiety incident to opening a new store, and the much time unemployed has

been very burdensome. I need more faith and confidence in the course of events."

A circular issued on opening his store, bearing date Fifth month 13th, 1844, is before us; it says, "in reference to that important branch of the business, embracing the compounding of medicines and physicians' precriptions, he believes that a regular education at the Philadelphia College of Pharmacy, and twelve years' experience in one of the first establishments of this city, will enable him to give satisfaction." The names of Drs. Wood, Bache, Jackson, Mütter, Hartshorne, Meigs, Harris, Rutter, and Henry M. Zollickoffer are given as references.

The neighborhood of Ninth and Lombard streets, at that time, would not have presented many attractive prospects to the generality of beginners, so well qualified as William Procter, Jr., for the higher branches of pharmacy. The square on the south side of Pine street, between Eighth and Ninth streets, was then an open lot. South street was the boundary of the city proper, and beyond this limit, for a long time, the acts of unrestrained "rings" of lawless associations, presented but little inducement to a settlement in that part of the city of the well-to do citizen.

Quietly, however, William Procter, Jr., pursued his course, attending to his own business, and abiding his time. The unemployed time he speaks of, was far from being *misspent;* his active habits and inquiring mind were not content with waiting for the routine of counter-work. His attention was directed to the improvement of many of the formulæ of the Pharmacopœia, devising new preparations, and original investigation on many subjects, where more light was wanting. As time passed on, the vacant lot was occupied by first-class residences, on Pine and on Ninth streets. A consolidated police force, under the vigorous rule of Marshall Keyser, restored order in the districts, and the business at Ninth and Lombard streets began to assume proportions more befitting to the capacity of the proprietor of the store.

A widowed sister lived with him as a companion and housekeeper, and her daughter, in the early years of womanhoood, beloved by all who knew her, added an attraction to the little circle, which will long be remembered by those who had familiar intercourse with the family at that time. The clouds which obscured the horizon of his field of action had dispersed, and left him no longer to doubt the

progress of the future. His spirits were buoyant, and his energy seemed almost beyond the capacity of his physical power, which, at that period, caused apprehension to many of his friends.

Closely occupied during the day in the affairs of his business, he was always ready in the evenings to enjoy the society of his friends. Practical in his habits of conversation, a close and correct observer, well informed in all the branches of science which were allied to his profession, he was a pleasant and profitable companion. Naturally retiring, and somewhat reticent with strangers, he appeared to them grave and not susceptible to lively emotions; but to those who know where lay the secret spring which unlocked this exterior, the inner man was found with all the freshness of boyhood, and, with almost child-like confidence, his real life was spread before them.

There was no subject which enlisted his attention so much as the advancement of Pharmacy. The minds of many of the members of the College of Pharmacy had long foreshadowed the time when lectures on this subject would be added to the curiculum of the College. In 1845, the subject assumed a definite shape, by a memorial, which was presented at a meeting of the College, held in September of that year, signed by William Procter, Jr., A. J. Duhamel and Edward Parrish. The memorial was accompanied by the following resolution, "that a committee of nine be appointed to consider the propriety of creating a new professorship, the occupant of which should be called the professor of theoretical and practical pharmacy."

After an *animated* discussion (as the minutes inform), the resolution was adopted, Daniel B. Smith, then President of the College, acting as chairman of the committee.

At a special meeting of the College, held in April, 1846, the committee made an able and exhaustive report on the subject, and it was resolved "that the report of the committee be referred to the Board of Trustees, with instructions to take the necessary measures for establishing the new professorship." A special meeting of the Board of Trustees was called in June, and William Procter, Jr., was unanimously elected Professor of Pharmacy.

In October, 1847, he delivered his Introductory Address to the class, which was published by request of the College. This address will be found in Vol. XIX of the *American Journal of Pharmacy*, and will well repay any student of pharmacy for a careful perusal of it. The following extract which we make has not lost any of the

timely words of warning then uttered. He says : "Some individuals enter the lists of pharmacy under delusive impressions, or are placed there by guardians who are equally misguided, illy prepared by education or endowments for so responsible a vocation. It is a sad spectacle to behold such giving their early years and youthful energies to a profession not suited to their tastes or inclinations—pursuing it, perhaps, until, on the threshold of manhood (when), they find themselves about to be cast upon the ocean of society in a vessel with whose qualities and powers they are too slightly familiar to enable them to cope with the difficulties which assail them. Many who are unsuccessful as apothecaries might have arisen to respectability and competence in other pursuits more harmonious with their inclinations or natural gifts. It too often happens with these that, repelled by ill success from their legitimate calling, they are induced to bow before the image of empyricism in the hope of a golden reward, and prostitute that knowledge that they never should have acquired to the invention of nostrums, and forcing them into notice."

At the commencement of the course of Lectures on Pharmacy, there was some misgiving, in the minds of some students, whether they would find an equivalent for their time, and the money-cost of the course. Such, however, soon found that there was a science and method in the dull routine of even the mortar and the spatula which they had not dreamed of, and, by the time the course had ended, they discovered a necessity for the exercise of mental as well as manual dexterity behind the counter, if they purposed encountering an examination on their fitness to prepare and dispense pharmaceutical products.

In the preparation of his lectures no amount of labor was too great to deter him from bringing before his class practical illustrations of his subjects; oral instruction he deemed very imperfect in his branch, unaccompanied by full demonstrations. This necessitated the expenditure of time and personal exertion, which few could realize who were not conversant with his habits of thoroughness and conscientiousness in the discharge of his duty as a teacher. During several years of his professorship his health was not strong, but his active mind rose above his bodily infirmities, and made the physical subservient to the determined will which animated him. While aware of the necessity of taking care of himself, the severities of winter rarely prevented his being found at his post at the appointed time. He commanded the respect, and, we may say, the affections of his class,

and his opinions had a weight of authority with them which has rarely been disturbed by after experience.

In 1846, William Procter, Jr., was associated with Prof. Joseph Carson as co-editor of the *American Journal of Pharmacy;* for two years previous he had assisted Prof. Carson in its editorial management. In 1850, Prof. Carson resigned from his position, and Prof. Procter assumed the sole editorial charge. In 1853 the Journal was enlarged by the issue of six numbers annually in place of four. In 1871 the issue of the Journal was made monthly. Prof. Procter inaugurated the monthly issue, and after editing the April number resigned his position, and was succeeded by Prof. John M. Maisch. He had contemplated a relinquishment of his editorial duties for some time, and in a written communication to the College, some months previously, had advocated a monthly issue of the *Journal,* and requested to be relieved from the editorship as early as the College could find a suitable successor.

For twenty years the *Journal* had been under his management in its editorial department, and how successfully that management was conducted, the volumes issued during that period are the best testimony. The original matter from his pen, and his judicious selections, gave to it a value and standing among American pharmacists, and made it the most complete history extant of the progress of pharmaceutical science in the United States. As an editor, he was just to all contributors, pleasant in criticism, never indulging in the personal or sarcastic, ever ready to expose fraud and empyricism, loving truth and sometimes proclaiming it when it was a disagreeable duty. After resigning the editorship, his time was so much occupied by his business that his name does not appear as a contributor direct to the *Journal;* in April, 1871, we have an article from his pen "On Pharmaceutical Titles"—the last of the long series. The General Index of the *Journal* exhibits seven columns, numbering some 550 items, under his name, exclusive of extracts and editorials. We think it may be safely said, without disparagement to any of his predecessors in the editorial management of the *Journal*, that the College was fortunate in placing the *Journal* in his hands. No man of the time could have been placed on the outlook commanding the horizon of pharmaceutical literature, whose heart was more thoroughly engaged in the work, and who was gifted with quicker perceptions, or better judgment. His name will ever be associated with the progress of phar-

macy in the United States, and the twenty volumes of the *Journal* which bear his name as editor, will remain a monument to his genius and zeal.

In October, 1849, Wm. Procter, Jr., was married, at Mount Holly N. J., to Margaretta, daughter of Amos and Elizabeth Bullock.

During this year was issued from the press his American edition of Mohr and Redwood's Practical Pharmacy. This voluminous work was enriched by additions from his own pen. The work never went through a second edition, attributed in a great measure to the cost of proper illustration, which the publishers were not willing to incur, and without which much of the value of the work would have been lost, In October, 1851, there was assembled in the City of New York a convention of pharmaceutists, in pursuance of a call made by the New York College of Pharmacy, for the purpose of considering the law relating to the inspection of drugs at the Custom House, and to fix upon some standard which would enable inspectors to act with uniformity and discernment. The Philadelphia College of Pharmacy was represented by Chas. Ellis, Wm. Procter, Jr., and Alfred B. Taylor. This convention was impressed with the advantages which would be derived by the pharmacists of the United States from an association national in character, where, by personal intercourse and exchange of experience, the practice of pharmacy throughout our widely extended country would be more harmonized and the general standard of education elevated. It was therefore "resolved that a convention be called, consisting of three delegates from each incorporated and unincorporated pharmaceutical society, to meet in Philadelphia on the first Wednesday in October, 1852."

This convention assembled in the old College building, in Zane street (now Filbert street), and here was inaugurated the American Pharmaceutical Association, the President of the College, Daniel B. Smith, acting as its first presiding officer. From the time of its inception William Procter, Jr., enlisted all his activity in promoting its welfare, and his name will be found in all its Proceedings down to the meeting in Richmond, Va., in 1873. In 1852 he was a member of its first executive committee; in 1853 was chairman of a committee appointed to prepare an address to the pharmaceutists of the United States on the subject of pharmaceutical instruction.

In 1853 he was a member of the committee appointed to prepare a paper on the standard of quality for drugs, together with appro-

priate tests for detecting adulteration. This committee was continued until the year 1856.

In 1856 he was chairman of the first committee on the progress of pharmacy, all previous reports on this subject having been made by him in his capacity of corresponding secretary. In the same year he was appointed chairman of a committee to report a syllabus of a course of study appropriate to students of pharmacy. This committee was continued until the year 1858, when he made the report published in the volume of the Proceedings of the Association of that year. He was corresponding secretary from 1852 to 1857, first vice-president in 1859–60, and was elected president at the session of the Association which convened in Philadelphia in 1862. In 1866 he was appointed one of the delegates to represent the Association at the international Pharmaceutical Congress to assemble in Paris in the following year.

He was absent from the annual meetings of the Association but once (while in Europe), and contributed largely to the interest of its Proceedings by answers to queries which he had accepted, and by his volunteer papers.

Prof. Procter had a taste for rural occupations, and in 1855 he purchased property at Mt. Holly, with a view to afford him scope for the enjoyment of this taste, as well as for the recreation and change which his health demanded. Additions were made from time to time to the original purchase, until he had a small farm of about sixty acres under his control. A cottage on the place afforded himself and family a summer retreat, and the cultivation of choice fruit engaged his personal attention. Many happy days were here passed ; escaped from the routine of shop and desk, the exhilaration of out-door exercise seemed to infuse renewed activity of mind, and to call back the hilarity of early years, before the sterner realities of life had drawn a curtain between the man and the exterior world.

In 1859 he lost his wife, and in 1864 was married to Catharine, daughter of Robert and Sally Parry.

In 1866 he resigned the chair of Pharmacy, and was succeeded by Prof. J. M. Maisch ; an interchange of professorships was afterwards effected between Profs. Maisch and Parrish, Prof. Parrish taking the chair of Pharmacy and Prof. Maisch that of Materia Medica.

Many years of close attention to his varied and assiduous duties rendered a season of relaxation and change necessary. In the sum-

mer of 1867 he determined to take a trip to Europe. Leaving New York by steamer in April, he landed at Queenstown, and after a hasty run through Ireland he crossed over to England, and proceeded to London. In the fortieth volume of the *American Journal of Pharmacy* is published his notes of travel, containing much interesting information to the intelligent pharmacist; this narrative leaves him at Rome. It was his intention to have continued it, as many pages of manuscript show; but his natural diffidence has precluded the readers of the *Journal* from many interesting observations by an observing traveller. The *practical* did not alone engross his attention; he had an appreciation for natural scenery, and a mind which was moved by the historical associations of the classic lands through which he journeyed. Of Rome he writes: "How useless to attempt to tell its story, to depict even what the transient traveller, the week's sojourner has seen and witnessed of this grand central point of the nations, this stage on which the shifting scenes of more than a score of centuries have been enacted, leaving their marks indelibly impressed. To an American, where all is of yesterday, these foot-prints of national existence, extending unbroken back to the night of time, produce a profound impression, and afford an ample subject for meditation, but not for description."

Leaving Rome, he proceeded by way of Florence and Padua to Venice. Of Padua he writes, "Its university and medical school are yet celebrated; we had no opportunity to ascertain whether the apothecary who served Romeo has a representative there, but we doubt not such is the case. We have seen several in Italy whose shops presented a 'beggarly' account of empty boxes." From Venice we follow him into Switzerland and to many of the cities of Germany, as far eastward as Berlin and Dresden; thence into Holland and Belgium. From Brussels he crossed over to England and visited Manchester, Liverpool, Glasgow, Edinburgh and the Scottish Highlands. Returning to London, he again crossed the channel to attend the Pharmaceutical Congress which assembled in Paris, to which he was a delegate from the American Pharmaceutical Association. At the close of the Congress he proceeded to Liverpool and sailed for home in September.

The business at Ninth and Lombard streets increased with the progress of the city in that direction, and rendered necessary more ample accommodations. The first enlargement of his store was made

in the winter of 1861, brought about at that time by an accident. He was distilling ether from a preparation, and having his attention called away, the water in the condensing apparatus became warm and allowed ether vapor to escape into the store; mingling with the close atmosphere of the room, an explosive mixture was in time formed and ingnited by the gas lamp under the still. The explosion forced the glass of the bulk windows into the street, but did no injury to the interior arrangements of the store, or to those engaged in it. Again, in 1870, more room was found necessary, and the whole of the remaining portion of the first floor was thrown into the store. In making these alterations, convenience for dispensing and proper arrangements for storage of articles was the first consideration, but little attention was given to the modern drawing-room style of some of our pharmaceutical establishments.

In 1847, Quevenne's Iron was introduced and becoming popular, Mr. Procter devoted considerable attention to its manufacture, and produced an article which gained a high reputation in the market. The manufacture having been taken up by others possessing more room and greater conveniences, he, after a few years, abandoned it.

When pepsin came into use, the varying qualities in the market induced him to make experiments on its production; he devoted considerable attention to it, and, during the last year of his life, he was quite extensively engaged in its manufacture.

The subject of pepsin closed the last lecture which he delivered to the class.

In 1872 the Chair of Pharmacy became vacant by occasion of the death of Prof. Edward Parrish. The season for the opening of the course of lectures was so near at hand that the Trustees of the College turned their minds instinctively towards William Procter, Jr. as the man to relieve them from embarrassment. The Trustees were well aware that he had an earnest desire for retirement, and canvassed well the field for one who could, at so short a notice, take up, the course on practical pharmacy. At the request of the Board of Trustees of the College he consented to fill the chair, and delivered the course of lectures in the winter of 1872–73. It was known to his friends that the position was intended by him to be but temporary, and that he contemplated retiring at the close of the following session. The lectures for 1873–74 progressed as far as February 9th, and but a few more remained to finish up the work which he intended should

terminate his professorship. On the evening of February 9th he delivered his usual lecture, and on returning home expressed the great satisfaction which the attention of the class had given him. At a late hour he retired in apparent usual health; shortly after falling asleep, a disturbance in respiration aroused the attention of members of the family and before medical assistance could be called, life had ceased.

As a veteran soldier steps forward to close the ranks where the shaft of death has struck, so he was not found wanting in his devotion to the cause which had enlisted the energies of his life, and as a veteran he has fallen with all his armor on.

He died aged 56 years and 9 months, leaving a widow, and two children by his first wife. May they perpetuate the qualities which made their father's name respected by all who knew him.

In person, William Procter, Jr., was of medium stature, with dark hair and black eyes, bespeaking an active, earnest mind. For many years after he commenced business his health was delicate and fears were entertained that he labored under pulmonary difficulties, such, however, proved not to have been the case, and the symptoms were probably connected with the incipient stages of disease of the heart. which finally terminated his life. Up to the time of his European tour he kept his face cleanly shaved, but while absent he allowed his whiskers and moustache to grow, and continued that custom during the remainder of his life. Those who knew him with a smooth face would hardly recognize the William Procter, Jr., of after years. His motions were quick and evidenced the energy with which he was endowed. In manner he was unostentatious and retiring, but when he felt himself known and understood he was genial and playful. He was an observer rather than a talker, but possessed the ability of expressing himself in clear and pleasant language. As a lecturer he chose the didactic to the exclusion of the ornate style of speaking. The jewels of his character were integrity, sincerity and a just sense of duty to his fellows. Educated in the religious belief of the Society of Friends, and holding their views during his life, he made no profession of sectarianism, but had an extended charity for the views of those who differed from him. Although he rarely alluded to religious subjects, those possessing his confidence were aware that the Bible had not been overlooked among his books. He was happy in the use of his pen, and his essays are marked by clearness of expres-

sion and a carefulness of detail, which leave no room to doubt the meaning of the writer. His investigations evidence a faithfulness in research and a completeness which has made his name an authority.

William Procter, Jr., became a member of the Philadelphia College of Pharmacy in 1840; in the succeeding year he was elected to its Board of Trustees, and held that position during his life. In 1855 he was made Corresponding Secretary of the College, and continued to serve as such for twelve years. In 1867 he was elected first Vice-President of the College. His interest in the affairs of the College continued unabated during the thirty years of his connection with it; so closely was he identified with its progress, that its history during that period is almost a narrative of his life.

He served on all committees appointed for the decennial revision of the Pharmacopœia for the past thirty years, and his services were engaged in assisting Doctors Wood and Bache, in several of the later editions of the United States Dispensatory.

A complete review of the published essays of Prof. Procter would occupy too much space for this memoir, and we can only allude to a few of them. His thesis in 1837 on *Lobelia inflata*, in which he demonstrates the presence in the plant of an alkaloid, describes the salts formed by union of the principal acids with the alkaloid, and proposed the name lobelina for the active principle.

Three years previous, S. Colhoun, M. D., Professor of Materia Medica in Jefferson Medical College, Philadelphia, published in the *American Journal of Pharmacy*, vol. V, the investigation of an acidified extract from Lobelia, which foreshadowed the presence of an alkaloid, but he did not succeed in isolating the principle. Prof. Procter was aware of Doctor Colhoun's investigation, and refers to it in his supplementary paper, published in 1841—a "casual omission," as he states, in not having done so in his thesis. In November, 1850, Mr. William Bastick read a paper before the Pharmaceutical Society of Great Britain on *Lobelia inflata*. He refers to Doctor Colhoun's paper, but evidently was not aware of Prof. Procter's researches in 1837 and 1841. Mr. Bastick isolated the alkaloid, and describes it, and his name is associated in the books with its discovery. In January, 1851, Prof. Procter writes to the Editor of the *Pharmaceutical Journal*, London, as follows: "For some reason, these (my) essays appear to have been entirely overlooked by the press and writers on your side of the Atlantic, and now that the drug

is attracting the attention of your medical men, its chemical relations are exciting the curiosity of your pharmaceutists. I should not have taken the trouble to bring their existence to your notice, had I not observed the paper of Mr. Bastick in your Journal for December, in which he states his ignorance of any previous researches having the same tendency as his own."

The *Pharmaceutical Journal* then published Prof. Procter's essay. placing him thirteen years in advance of Mr. Bastick as the discoverer of lobelina.

In the same year with the publication of his thesis, we have "Remarks on an oil obtained by distillation from wild cherry bark, and evidences of its similarity to oil of bitter almonds."

In 1838, a paper "Demonstrating the existence of amygdalin in several species of the genera *Prunus* and *Amygdalus*."

In 1839, "Observations on dextrin and diastase," and "On *Lobelia cardinalis*," showing the presence in that plant of an alkaloid differing in some respects from the alkaloid found in *Lobelia inflata*.

In 1840, a paper "On the power of saccharine substances in protecting from decomposition solution of protiodide of iron."

In 1841, an essay "Supplementing his thesis on *Lobelia inflata*. and showing that the alkaloid therein described, represents the plant in medicinal qualities."

In 1842, "Observations on the volatile oil of *Gaultheria procumbens*, proving it to be a hydracid analogous to salicylous acid."

A year later, M. August Cahours took up the same subject, and arrived at the same results by a proximate analysis of the oil, but in his paper, published in the *Journal de Pharmacie et de Chimie*, March, 1843, he makes no allusion to Mr. Procter's previous publication, leaving us uncertain whether he had seen Mr. Procter's paper, or whether the investigation made by him was coincident with that of Mr. Procter.

In 1843, "On the volatile oil of *Betula lenta* (sweet birch), and on gaultherin"—a substance playing a part similar to amygdalin—and which, by its decomposition, yields an oil identical with oil of gaultheria.

In 1847, "On the reduction of oxide of iron by hydrogen."

In 1849, "Remarks on the oleo-resinous ethereal extracts, their

preparation, and the advantages they offer to the medical practitioner."

In 1851, among numerous contributions, we have an essay "On the botanical and chemical character of sassy bark (the doom plant), of Western Africa."

In 1852, a continuation of the essay on sassy bark, and "Observations on the volatility and solubility of cantharidin, in view of an eligible pharmaceutical treatment of Spanish flies."

In 1853, fluid extracts began to attract attention, and in this and the succeeding year he contributed several papers on that subject; also, one "On the pharmacy of the phosphates."

In 1858, "An essay on the hypophosphites."

In 1859, "On polygalic acid," and "On the existence of nicotina in green tobacco." In the same year, he read before the American Pharmaceutical Association, in Boston, an elaborate essay on fluid extracts, suggesting formulæ for their preparation, and presented specimens of over thirty fluid extracts prepared according to his suggested formula.

For this essay a copy of Pereira's Materia Medica was voted to him by the Association, as a testimony of its appreciation of his services. This paper may justly be considered as forming the basis on which many fluid extracts were admitted into the Pharmacopœia.

In 1866, we have an essay "On *Liquidambar styraciflua* and its balsamic resin," "showing the principle contained in the resin to be cinnamic acid."

The papers contributed by Prof. Procter to the American Pharmaceutical Association are numerous, and marked by his usual carefulness and accuracy of investigation. Of these, his essay "On Ergot" (suggesting the use of acetic acid in its preparation), "On aconite root," "Atropia from American belladonna," "On extract of *Cannabis Indica*," "On *Sassafras officinale*," may be mentioned as not included in the preceding review.

In the Proceedings of the Association for 1873 will be found several able papers from his pen. One, "On suggestions to beginners in pharmacy," should receive attention from all of that class who purpose following in the path which he has trodden before them.

In concluding the memoir of Prof. Procter there is brought to our minds one of his last official acts before this College: In September 1873, as Chairman of the Committee on Deceased Members, he read

from this desk a memoir of our late associate, Elias Durand; a year has passed! and upon the remaining members of that committee devolves the duty of presenting a memoir of *his* life.

We need only to sketch the outlines, and the recollections of each one can complete the picture. His name is yet fresh upon the minutes of our meetings, and as it is read our eyes turn to his accustomed place; but while

> *His* "written words we linger o'er,
> Yet in the sun *he* casts no shade;
> No voice is heard, no sound is made,
> No step is on the conscious floor."

As the deepening shades of night invited to repose after the labors of the day he lay down to rest, and the last page of his life's history was closed!

To us is left the remembrance of his earnest, active life, ambitious, not for place or preferment, but for the advancement of the purposes for which this College was founded—that knowledge which elevates the profession and the individual, and confers a lasting benefit upon society.

Varieties.

The Franklin Institute Exhibition,*—The venerable Franklin Institute of this city bears a relation towards technology, which is in many respects analogous to that of our own College toward pharmacy. Both institutions have been in existence more than half a century, each laboring zealously within its respective field. The chief mission of the Franklin Institute has been the instruction of those who labor with head or hand in industrial pursuits; that of our own College is too well known to need comment. Both, again, occupy parallel positions in bringing together those who pursue similar avocations, and in promoting friendly intercourse among them, so that they can freely interchange their ideas for mutual profit. The distinctly avowed purpose of each institution is the higher education of earnest workers, so that the knowledge of each may become the common property of all. United thus by a bond of goodwill with all who labor faithfully for the diffusion and advancement of modern enlightened ideas, it eminently behooves us to take cognizance of the magnificent exhibition, which has for several weeks past been visited and admired by so many thousands of our best citizens.

* Read at the Pharmaceutical Meeting, October 20th.

It appears somewhat strange that, although industrial exhibitions were in this country originated by the Franklin Institute, our city has not for a number of years been the scene of one of these. It is stated that it was not previously possible to obtain suitable buildings in accessible localities, the present display being held in the old freight depot of the Pennsylvania Railroad Company, which has been but recently vacated.

Without wishing in the least to disparage the merits of the numerous similar exhibitions, which have recently been held, we are of necessity forced to concede the average superiority of the goods displayed in our city. A large amount of space was taken up in the Western exposition by objects that are so common place in their nature, that they failed to excite either admiration or curiosity, their undeserved prominence being evidently only a trade advertisement and nothing beyond. At the present Exhibition a vast majority of the goods possess intrinsic merit, either on account of their novelty, superiority or rarity. Another feature, which is highly appreciated by visitors, is the great beauty manifested in the artistic arrangement of many otherwise incongruous articles. In the evening, the building is brilliantly illuminated by twenty-eight hundred gas lights, many of them issuing from the magnificent chandeliers contributed by our renowned Philadelphia manufacturers.

About one-half of the entire space is taken up by machinery of the most varied kinds, most of it being in active operation. The display in this department is stated by competent authorities as being not only the most extensive, but also. by far the finest that has ever yet been exhibited on this continent.

Without attempting to enumerate all the multitudinous articles of pharmaceutical interest, we will merely endeavor to present an epitome of those characterized by prominent features.

Powers & Weightman present the most elaborate display of their manufactures which we have so far examined. Considerable labor and patience has evidently been bestowed on the preparation and arrangement of these specimens. About $2000 worth of sulphate of morphia is exhibited in large blocks, which, when illuminated by the reflection of McAllister's calcium light, present an appearance of snowy whiteness and dazzling brilliancy. The sulphates of cinchonidia and quinidia, which are beginning to be largely consumed in the South as substitutes for quinia, are exhibited in enormous bell glasses. The quinidia consists entirely of very beautiful long, silky crystals, which are frequently mistaken by visitors for asbestos. Citric and tartaric acids made by the firm are shown in unusually large and handsome crystals. Gallic acid is modelled into the shape of Cleopatra's Needle, forming a huge obelisk. Large masses of copper sulphate and of alum are effectively disposed. Silver nitrate is exhibited in plates of remarkable size. The cadmium iodide is peculiarly beautiful, resembling in lustre the mother-of-pearl, or nacreous layer of certain shells. Two large vessels of ammonium nitrate have been specially admired ; some of these numerous prismatic crystals measure fully fifteen to sixteen inches in length, while they are barely three to five lines in thickness.

Rosengarten & Sons also exhibited an extensive assortment of their chemicals.

Henry Bower makes an elegant and effective display of the rather limited number of his productions. His renowned glycerin, of course, occupies a prominent position. A very large mass of ferrocyanide of potassium in crystals is beatifully framed and draped in an artistic fashion. The ferridcyanide is exhibited in handsome pyramids. Stearic acid welcomes us as a life size bust of Franklin, and also as a double representation of the goddess of beauty, of her that was born of the foam of the sea, Venus Anadyomene. These statues will bear scrutiny as works of art, being highly finished and polished so that they resemble the finest Carrara marble.

The Pennsylvania Salt Manufacturing Co. makes a very fine display of its chemicals, particularly of alum, prepared from kryolite in vast quantities. An imitation iceberg, illuminated in the interior, has been constructed out of about three tons of this beautiful article. These large transparent crystals have a peculiar greenish tint, like that of ocean waves. No great stretch of the imagination is necessary to associate this production of "Greenland's icy mountain" with the fairy grottoes of which the northern skalds were accustomed to chant in their ancient sagas.

Natrona porous alum, which is stated to be pure aluminum sulphate, is also shown; the company claims numerous advantages for this as a sizing agent in paper making. Fine specimens of native kryolite attract much attention. Caustic soda, iron sulphate, sodium carbonate and bicarbonate figure among their products. The natrona sodium bicarbonate has the reputation of excelling the best Newcastle in purity. The Greenwich brand is made by the company, in this city, from salt. As the company has quite recently commenced putting this up in small packages for family use, we regret to notice that no attempt has been made to conform to the nomenclature of the present day, but that, on the contrary, incorrect and inaccurate names are retained. It would have been quite in harmony with the spirit of enterprise so frequently manifested by this great concern to give the correct, modern appellation, and then to let the superannuated synonyms follow.

Kurlbaum & Co. make a fine show of camphor, in circular disks, refined by themselves. They exhibit, also, a number of ethers, the oils of camphor, cloves and allspice, with a line of mercurial preparations, among which calomel in very fine crystals is conspicuous.

William Gulager exhibits white wax, litharge, refined saltpetre and Hartman, Laist & Co.'s glycerin.

The Philadelphia Quartz Co. offer a great variety of preparations of silicate of soda, in the form of crystals, powder and jelly. It is really surprising to note the number and variety of technical applications of this interesting substance. The labels of the different jars inform us that one preparation is for calico-printing, another for making concrete stone, another for refining sorghum, still another for saturating boxes and packages to prevent the absorption of oil, and yet another for improving the manufacture of soap. Besides these we notice a solid form recommended for washing machinery-waste, with samples of the so called waste before and after purification. Judging from these specimens, the silicate is certainly very efficacious in its action. We notice also silicate of potash in solution, formerly used for making a patent artificial stone;

tallow and rosin laundry-soaps, containing respectively twenty-two and a half and twenty-five per cent. of silicate of soda.

Rihn & Co. and L. Martin & Co. display varieties of lampblack.

The products of the Gap Nickel Mine, of Lancaster County, are exhibited by the American Nickel Works. We observed some very beautiful specimens of nickel and cobalt plating, together with nickel ore and pure cobalt and pure nickel, and a number of rare and handsome salts of both these metals.

Hance Bros. & White have made a tasteful and elaborate display of their varied manufactures. Among these multitudinous productions we noticed nitrite of amyl, and an imitation of the famous cordial of the monks, Elixir Chartreuse.

Sugar-coated pills, in the well-known vast variety, are exhibited by Bullock & Crenshaw and Wm. R. Warner & Co.; compressed pills, by John Wyeth & Bro.; gelatine-coated pills, by McKesson & Robbins.

Keasbey, Mattison & Rutter exhibit an assortment of their granular effervescent salts, together with saccharated pepsin and pancreatin.

Mellor & Rittenhouse offer American licorice, in rolls of various sizes and in mass. The latter, in particular, seems to meet with general approbation, if we may judge from the rapidity with which it evaporates. Also, bay rum, court-plaster, medical and cachou lozenges.

John M. Sharpless & Co. exhibit fine specimens of various dye-woods, such as hypernic, Campeachy, camwood, barwood and fustic; also, red and yellow prussiate of potash, bluestone and extract of logwood.

Harrison Bros. & Co. have made a very extensive and praiseworthy display of their paints and chemicals. Their large jars of brilliant pigments are more particularly attractive on account of being carefully graded from light to darker shades, so as to present a regular chromatic scale. As far as possible, each color has a separate shelf assigned to it, thus producing a harmonious impression. We are under obligations to the accomplished and gentlemanly representative of the house, who kindly explained to us the composition of many of their paints. The numerous substitutes for Paris green, sold under an infinite variety of names, and by many houses claimed to be entirely free from poison, were stated to be mixtures of chrome yellow with Prussian blue or ultramarine, in varying proportions. The extra light shade of chrome yellow known as canary, is obtained by an admixture of sulphate of lead. Colors for paper-staining and others for lithographic purposes are also shown in great variety. A large bottle of wood alcohol is on exhibition, this being here chiefly consumed in the manufacture of shellac varnish. Alum and pyrolignate or brown sugar of lead, used largely by morocco dressers, were effectively displayed. We were particularly pleased with the exhibition of specimens illustrating the manufacture of white lead in its various stages. The pure metal is shown after being cast by machinery into the shape of perforated discs, technically called buckles, and, also, after it has been corroded by dilute acetic acid. This firm packs the corroding pots in tan, having found that material to be preferable to manure.

Paints are likewise exhibited by John Lucas & Co. and Wetherill & Bro.

Our cosmolin friends have been lavish in their disbursements for huge glass

jars and glittering lables for their products. Samples of cosmolin are freely distributed to visitors.

Morehouse, Rockefeller & Co. have done their utmost to present samples of twenty-seven varieties of lubricating oils in a highly attractive manner. They deserve credit for the ingenuity of the arrangement, which consists of very long glass cylinders, of graduated sizes, enclosed on top and below in walnut.

Perfumery is exhibited, in great variety, by Hermann A. Vogelbach, Wm. M. Wilson & Co., Samuel Campbell, A. Fricke and S. C. Upham. The three first-named welcome all visitors most cordially with the perfume-diffusing atomizers. Mr. Vogelbach's American extracts meet with much favor.

McKeone & Van Haagen have a large assortment of fancy toilet soaps on exhibition. We were pleased most by their white Castile soap, made by themselves from pure olive oil, and quite equal in quality to the best imported.

The Dempsey Wicker Covered Glassware Company present their demijohns and covered bottles, furnished with glass and tin labels. These possess some obvious practical advantages, and they appear to be gaining popularity.

Perfumers' and druggists' glassware is exhibited in profusion by Whitall, Tatum & Co. and the New England Glass Company.

Jas. K. Kerr & Bros. have a workman at the Exhibition employed in the interesting process of engraving on glass. They employ for this purpose American corundum from the Unionville mine, of Chester County, which they state to be superior to the imported emery. Specimens of native and prepared corundum are exhibited in another portion of the building.

Hale & Manley make a handsome display of labels and signs.

William Holzer exhibits glass syringes, pipettes, glass models of apparatus, and other chemical glassware ; also, a mammoth alcohol thermometer, twelve feet high. His workmen are constantly employed in blowing fancy toys of colored glass, before a throng of admirers, to whom they distribute a facetious circular, which dilates upon the virtues of the chemical hand-glass, by a dubious euphemism styled " the sympathy thermometer, or philosophic love-tester."

Barrows, Savery & Co. offer china-lined cluster pots in halves, thirds and quarters, affording facilities for heating either two, three or four different liquids on one fire. Although intended chiefly for household purposes, they may occasionally prove quite serviceable to pharmacists.

Richard C. Remmey exhibits some fine specimens of chemical stoneware.

N. M. Kerr & Co. display a case of choice paper boxes, some of them of novel construction, and rivalling the finest imported in elegance.

Joseph Zentmayer, the renowned optician, exhibits a case containing nine beautiful microscopes, of various powers. These have been specially made by him for the philosophical cabinet of the University of Pennsylvania.

Optical and philosophical instruments are also displayed in great profusion by James W. Queen & Co., Wm. Y. McAllister and Heller & Brightley.

Dr. W. H. Pile exhibits a selection of his well-known hydrometers, specific gravity bottles and aluminium weights.

Druggists' scales and analytical balances, of very fine workmanship, are shown by H. Troemner and Becker & Sons.

While admiring the magnificent display of slate mantels and Marezzo marbles.

it occurred to us that these substances are peculiarly suited for counters, columns and pedestals in first-class pharmacies. Every variety of rare colored marbles, from the most delicate tints to the darker shades, is reproduced with perfect fidelity by the Marezzo process. Both these and the marbleized slates are much stronger than the real marble, and very much cheaper. Marezzo marble can be imperceptibly repaired when broken.

The wood carpeting, of which some fine examples are exhibited by J. W. Boughton, is also well adapted for covering the floors of pharmacies. Special designs, names, monograms, &c., can be neatly inserted, so as to present a novel and unique effect.

The Wells & Hope Co. display a large assortment of printed metallic signs and show cards, suitable for manufacturers of perfumery and specialties. Their tin signs are durable, economical and mostly of impressive designs.

As the chief incentive for opening the present Exhibition has been the desire to prepare for the Centennial, we trust sincerely that the members of our profession will diligently study it, so that they may become proficient in the art of exhibiting. Having invited the pharmaceutical world, the duties of hospitality demand of us that we should use our utmost endeavors to entertain them in a becoming manner —ADOLPH W. MILLER, M. D., PH. D.

Minutes of the Philadelphia College of Pharmacy.

The Semi Annual Meeting of the Philadelphia College of Pharmacy was held at the Hall of the College, Ninth month 28th, 1874. Twenty-four members present. Dillwyn Parrish, President, in the chair.

The minutes of the last meeting were read and approved.

The minutes of the Board of Trustees were read by Wm. C. Bakes, Secretary of the Board, and on motion, adopted.

Charles Bullock, on behalf of the Committee on Deceased Members, read a long and interesting memorial of the life and services in the College of the late Professor Procter. It was listened to with close attention by all the members present, portraying, as it did faithfully, his eminent services, from the time he entered the College until the close of his life. On motion of James T. Shinn, the memorial was accepted and referred to the Publication Committee, with instructions to have it published in the *Journal*, and also to have it printed in pamphlet form. (It will be found in full on page 512 of this number.)

Professor Joseph P. Remington, on behalf of the Committee appointed to attend the meeting of the American Pharmaceutical Association, recently held at Louisville, Kentucky, read a report, which was accepted.

The report of the Committee appointed to attend the Conference of the Pharmaceutical Schools, was read by Professor Maisch, and accepted, as follows:

To the Philadelphia College of Pharmacy:

The delegates appointed to attend the meeting of the Fifth Conference of Schools of Pharmacy, respectfully report, that the meeting was held in the Galt House, Louisville, on the evening of Thursday, September 10. The sub-

ject of titles, which had been deferred at the previous meeting held in Richmond, came up for consideration. All the Colleges represented, with one exception, reported through their delegates in favor of the time-honored degree of Graduate in Pharmacy, "and against the conferring of the title of 'Doctor in Pharmacy' upon the curriculum of our Colleges of Pharmacy, under the pretence of raising the standard of graduation. The reasons assigned for this course were similar or identical with those advanced by a Committee appointed some time ago by our Board of Trustees, in a report published on page 391 of the August number, *American Journal of Pharmacy*. The Colleges of Pharmacy adhering to this course are those of Massachusetts. New York, Philadelphia, Maryland, Cincinnati, Louisville, St. Louis and Chicago. The delegate from the Tennessee College withdrew from the Conference. The National College of Pharmacy at Washington and the California College of Pharmacy were the only Schools not represented at the Conference.

A resolution was adopted that at each Conference, two Colleges be appointed, each to propose for discussion at the next Conference, one question, which is to be communicated to the other Colleges as early as possible; the Philadelphia and Louisville Colleges of Pharmacy were appointed under this resolution.

A motion to print the Proceedings of the five Conferences was laid upon the table. The officers for the present year are: President, Charles A. Tufts, of the Massachusetts College of Pharmacy, and Prof. Jos. P. Remington of this College, Secretary.

John M. Maisch,
Joseph P. Remington.

Prof. Maisch called the attention of members to the importance of speedily fitting up the cabinet of the College, in order that we may make a creditable display during the forthcoming Centennial Celebration in 1876.

He stated that the meeting of the American Pharmaceutical Association will be held here in that year, and that there was reason to hope that the Fifth International Pharmaceutical Congress would be held here also at that time.

He solicited the co-operation of all the members, which may be interpreted to mean a contribution of the finest specimens of chemicals, pharmaceutical preparations, and all articles of Materia Medica, that can be obtained, and the arrangement of the same in the cabinet of the College.

On motion of Prof. Remington, it was resolved that the Publication Committee be authorized to forward the *Journal* of the College to all our honorary members from this date forward.

This being the Semi Annual Meeting, an election for eight Trustees and the Committee on Deceased Members was ordered.

The President appointed as Tellers: Allen Shryock and J. W. Worthington, who, conducting the ballot, reported the following gentlemen elected:

Trustees.—Dr. Wilson H. Pile, Alfred B. Taylor, William C. Bakes, William McIntyre, Albert P. Brown, Edward C. Jones, Richard V. Mattison, Robert England.

Committee on Deceased Members.—Charles Bullock, Alfred B. Taylor, Prof. Jos. P. Remington.

There being no further business before the meeting then, on motion, adjourned.

William J. Jenks, *Secretary.*

Minutes of the Pharmaceutical Meeting.

The first meeting of the present session was held October 20th, 1874, J. T. Shinn in the chair. W. McIntyre was elected Registrar, E. C. Jones acting as teller. Prof. Maisch presented, on behalf of P. J. Hazzard, to the library, a work entitled "Materia Medica of Hindoostan, by W. Ainslie, M. D."

The Cabinet was the recipient of the following: From Betanelly & Co., Horasan and Djabon silk cocoons from Southeast Caucasus; these cocoons are used to a considerable extent in France in the manufacture of silk. The same firm also presented whole flowers and the pure powder of Pyrethrum roseum or Caucasian (Persian) Insect Powder. James T. Shinn presented a handsome sample of assafœtida in tears.

Professor Bridges presented, in the name of Mr. A. Yarnal, some masses of sublimed bicarbonate of ammonia, which had been found in a barrel of the commercial carbonate lately purchased. This is an accidental product, rarely occurring in commerce. It was first noticed by Phillips, (Annals of Philosophy, xvii, 110), Henry (the chemist) having given it to him as an abortive result in a preparation intended for smelling salts. Phillips, on analysis, found it to be anhydrous bicarbonate, having the composition, as then expressed, of $NH_3\,2HO.2CO_2$ the ammonium hydrogen carbonate of the new chemistry, $NH_4\,H.CO_3$. This salt resembles the commercial carbonate in appearance, is hard, translucent and crystalline. When in a close bottle for some time a decided odor of ammonia is perceived when the bottle is opened, probably from the presence of some sesqui-carbonate. This soon disappears, and, after exposure, becomes imperceptible. It has a pungent saline taste, but none of the sharp biting of the sesqui-carbonate. Exposed to the air it does not alter, but probably evaporates slowly; like all the alkaline bicarbonates, it holds, in the presence of water, part of its carbonic acid with a weak affinity. It dissolves, at 55° F., in six parts of water, and when a mass is placed in water minute bubbles soon form on the surface as solution takes place; these increase in number and size as the temperature rises, and become very copious at 150° F. The gas given off precipitates lime water freely. This solution of lime with an excess of the lime, when raised to the boiling point, does not affect moist turmeric paper placed in the mouth of the flask in which it is heated, showing that the gas is nearly all carbonic acid. The solution of the ammonia salt has also acquired a strong odor. This ready elimination of carbonic acid explains why solution of ammonia cannot be fully saturated with carbonic acid at ordinary temperatures. This salt, of course, is not proper for use as a stimulant, but, like the effloresced sesqui-carbonate may be used for other purposes for which the salt is adapted.

A. W. Miller exhibited oils of peppermint and lemon, adulterated to a very large degree with alcohol and castor oil, and oil of wintergreen, adulterated with alcohol. He also read a paper on adulterated beeswax, and exhibited samples of pure wax and paraffin, and of mixtures of the two, in different proportions. Dr. Miller also read a paper containing observations on the Franklin Institute Exhibition. Both papers were referred to the Publication Committee.*

* See pages 510 and 533 of this number.

Professor Maisch exhibited so-called American opium—the Wilson fraud—proven by Mr. Ebert to contain no opium, but to be probably extract of lettuce.

Dr. W. H. Pile briefly described the process for preparing bromide of ammonium, as reported by him to the American Pharmaceutical Association. The ammonia must not be poured down the same funnel as the bromine, but should be carefully distributed over the surface of the water, at the bottom of which the bromine is kept, otherwise reaction might take place with dangerous rapidity. In answer to a question by Prof. Maisch, he stated that no bromide of nitrogen was produced.

Observations were made upon water air pumps and various instruments for producing a partial vacuum.

Robert England exhibited some pictures photographed by the sun's rays, the natural colors of the object being fixed to some extent.

Upon inquiry it was stated that sulphate of cinchonidia seems to be used largely, and the good reports of its merits substantiated. Adjourned.

William McIntyre, *Registrar.*

Pharmaceutical Colleges and Associations.

The Michigan Pharmaceutical Association held a meeting at St. Andrew's Hall, Detroit, October 22, to consider the report of the Committee on Constitution and By-laws, which were taken up by sections, discussed and adopted. An animated discussion took place in relation to section 12, which was finally adopted in the following amended form:

"*Section* 12.—The adulteration of drugs and medicines, or the habitual retailing of intoxicating liquors by the glass as a beverage, shall be deemed a misdemeanor, and subject the members guilty of the same to have their names stricken from the roll of membership,"

The clause referring to the retailing of liquors by the glass appears to have been objected to by some members.

After the adoption of the By-lays, the draft of a law to regulate the sale of medicines and poisons was submitted and approved, the bill being similar to the one which was before the Legislature of Michigan at its last session.

A number of queries were read, to be investigated by the members, after which the following officers were elected for the ensuing year: President, Prof. S. H. Douglass, Ann Arbor; Vice-President, S. H. Wagner, Muskegon; Corresponding Secretary, Paul Plessner, of Detroit; Recording Secretary, James Vernor, of Detroit; Treasurer, S. M. Sackett, of Monroe; Auditor, B. D. Northrop, of Detroit.

The Standing Committees were announced and the following delegates to the next meeting of the American Pharmaceutical Association appointed: S. M. Sackett, Monroe; P. Plessner, Detroit; O. Eberbach, Ann Arbor; F. Von Walthausen, East Saginaw; and James Vernor, Detroit.

The association then adjourned to meet again in Detroit, on the third Wednesday of October, 1875.

Editorial Department.

Druggists and Patent Medicines.—Under this heading, we have received a lengthy communication from one of our correspondents, Mr. James W. Long, commenting upon the speech of Mr. S. M. Colcord, extracts of which we printed upon pages 445 and 446 of our September number. Mr. Long argues that the drug and pharmaceutical business, like any other, resolves itself into a question of bread and butter, and that the apothecary is compelled to sell patent medicines; his object is not to defend the medicines, but "the druggist, who, to eke out a living or to make more money, sells them."

We find nothing in Mr. Colcord's remarks averse to the position taken by our correspondent; the former stated distinctly his views in attributing this state of things to the universal law of *demand and supply;* that the demand is created by appeals or advertisements *directed to physicians and the public*, and generally *in spite of apothecaries' aid and influence;* and that, as far as pharmacists are concerned, a thorough education will, as a rule, *prevent them from becoming successful nostrum proprietors.*

We feel compelled to endorse this position, and particularly the views of the elevating influence of sound knowledge; but even if this should be accomplished, as far as every physician and pharmacist in the land is concerned, the demands by the people for patent medicines would not cease, and hence our correspondent is perfectly correct, when he says, that arguments against these preparations should be also addressed to the public. Upon the manner in which this may be done, individual views may differ; but, for years past, we have felt convinced that a plan similar to those published on pages 90 and 350 of the present volume would accomplish more towards reducing the number of proprietary medicines and dangerous compounds indiscriminately sold, than ever so many pamphlets addressed to the public, or resolutions passed by medical or pharmaceutical societies.

To illustrate the difficult position of the pharmacist with the public, in relation to this question, we copy the following from the communication of Mr. Long:

"The pharmacist puts in a stock of drugs and fancy articles, and, after reading attentively the teachings of the pharmaceutical colleges, imagines he is a true disciple and has the thing about complete, when in comes a customer, demanding a bottle of Perry Davis's Pain Killer. Upon being told that it is not kept in stock, an uncomplimentary remark is made as to the store, and the customer goes to the nearest general store and procures it.

"Now, there are two things left open for the pharmacist: one is to tell the man that he does not keep Perry Davis's Pain Killer, but he can mix him some tincture of capsicum, ginger, number six, oil of peppermint, and a half dozen other things, and make him a pain killer, or to procure some of Perry Davis's Pain Killer. If he takes hold of the first horn of the dilemma, the physician will pitch into him for prescribing, and the only thing left for him is the second alternative.

"Here he finds a business El dorado. These large patent medicine houses

have gentlemanly agents, who visit the four corners of the earth. They come into his store, with their little satchels, their regalia cigars, and a bland smile. They tell him they will send him this or that on commission, freight paid, and will call in a year for settlement, or perhaps in six months. He concludes to try it, the temptation is great. The bill comes, the packages are handsomely done up, and the profits remunerative, and it gives his store a handsome, full appearance.

"Now, just at this juncture, comes a little affair that requires notice: There are two kinds of customers who come into a store. One asks for a specific article, pays for it, takes it and leaves. This is legitimate, and no druggist is to be blamed for it.

"But another class comes in, and asks, 'Have you got anything good for a cold?' or, 'Have you got a good liniment for rheumatism?' The farthest an honest druggist will go in his answer is to say, 'Here is an article I sell a good deal of,' or, 'Here is an article which has a good reputation'; but he is not justifiable or excusable in answering, 'Yes, sir: here is an article that I will warrant,' or, 'Here is an article that will cure your cold,' for when he does so he tells a falsehood, guarantees a preparation he knows not the ingredients of, and in this case greatly prostitutes his profession for the sake of a few dollars or cents.

"But for science to say that, in keeping them in his store and selling them, he degrades his profession, is making a statement that to swallow will choke common sense to death, and throw good business principles into an apoplectic fit.

"No person is more aware, Mr. Editor, of the immense advantages of scientific researches into pharmacy than I am, nor is any one more grateful than I of the value of just such journals as the *American Journal of Pharmacy;* but the war against patent medicines will never be a success until poor pharmacists cease to need money to buy bread and butter with.

"I believe in the elevation of the profession of pharmacy, and in the diffusion of knowledge, for it brings not only relief to suffering humanity, but practical benefit to the business man.

"Take one instance: I was struck with the formula for Effervescing Solution of Tartrate of Sodium, published in *Am. Jour. of Phar.*, July, 1873, p. 289, and tried it. At first I found it hard to introduce it, and had to take the first bottle of it myself (though, to tell the truth, I did not need it), but now it has driven citrate of magnesia, in solution, out of the market, and we have a large and increasing sale of it. Such things as these are of direct benefit to druggists as well as to the people."

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Clinical Lectures on Diseases of the Nervous System. By William A. Hammond, M. D., Professor of Diseases of the Mind and Nervous System in the University of the City of New York, etc. Reported, edited, and the histories of the cases prepared, with notes, by T. M. B. Cross, M. D., Clinical Lecturer on Diseases of the Mind and Nervous System, etc. New York: D. Appleton & Co. 1874. 8vo, pp. 291.

These lectures were delivered at the New York State Hospital for Diseases of the Nervous System, and at the Bellevue Hospital Medical College; and as they were intended especially for the benefit of students, the chief aim of Prof. Hammond has been to present practical views, fully illustrated by cases, with the results derived from treatment, as far as that was possible, and to confine himself to a full consideration of the symptoms, the causes and the treatment of each affection, particularly in their relation to the cases. The Editor has carefully prepared the history of the cases, and while the volume lays no claim to being exhaustive, it will be found to treat, in the manner indicated above

of all the more important affections of the kind, which the physician is likely to meet in his practice.

The Physicians' Visiting List for 1875 (twenty-fourth year of its publication). Philadelphia: Lindsay & Blakiston.

This well-known annual publication has been issued by the publishers.

OBITUARY.

Dr. William Barker Chapman died at Cincinnati, October 10th, after an illness of three weeks. of dysentery. The deceased was born at Pennypack Hall, near Philadelphia, June 5th, 1813, graduated at the Philadelphia College of Pharmacy, March, 1834, and came to Cincinnati April, 1835. He was associated with Dr. Eberly in the drug business until 1839, when he started in business for himself, on the corner of Sixth and Walnut streets, and afterwards moved to the corner of Court and Vine streets. When the Mechanics' Institute was finished, he opened the store there, which was long identified with his name.

In the spring of 1839 he received the degree of M. D. from the Ohio Medical College, and in the same year was united in marriage to Margaret, daughter of William Crossman. He was elected President of the American Pharmaceutical Association at their Third Annual Meeting, held in Cincinnati in 1854. During the war he was appointed Surgeon in the Unlted States Army, being stationed at Camp Dennison. He was at the time of his death the oldest pharmaceutist in the city, and held a high rank among the profession. In 1872 he was elected Professor of Pharmacy in the Cincinnati College of Pharmacy, and more recently was appointed by the Court of Common Pleas one of the Pharmaceutical Board of Examiners.

Dr. Chapman was a member of the Society of Friends, and for many years held the position of Grand Master of Odd Fellows of the State of Ohio.

The following resolutions, passed by the Alumni Association of the Cincinnati College of Pharmacy, give evidence of the high esteem in which the deceased was held as a teacher and man:

"*Resolved*, That we who have listened with so much interest to his able and instructive lectures, and who feel so deeply indebted therefor, shall ever cherish in sacred remembrance his many deeds of kindness and earnest endeavors to implant in us the knowledge of our profession, with which he was so richly endowed.

"*Resolved*, That in the death of our esteemed Professor, who has so suddenly been taken from us in the midst of his duties, we have lost a devoted friend, and the College an able and honored member.

Isaac Coddington, a prominent pharmacist of New York City, died there October 14th. He was a member of the firm of I. and J. Coddington, whose store was located for many years on Broadway, corner of Washington Place, and more recently opposite Union Square. He was a member of the American Pharmaceutical Association since 1855, always evinced great interest in its objects, and when present at the meetings occasionally participated in the discussions. The deceased was a member of the New York College of Pharmacy, and for a number of years served and actively labored in its Board of Trustees.

Errata.—Our readers will please make the following corrections in the October number of the *Journal*:

Page 466, second line from above, read *emulsin* in place of *emulsion*.

Page 466, fifth line from bottom, read Oi in place of ℈i.

Page 492, seventeenth line from bottom, read 304 in place of 104.

THE

AMERICAN JOURNAL OF PHARMACY.

DECEMBER, 1874.

PHARMACY IN DENMARK.

By Hans M. Wilder.

There having appeared in the *American Journal of Pharmacy* notices on the state of pharmacy in almost every country in Europe (Austria, Belgium, France, Germany, Great Britain, Holland, Italy, Norway, Russia, Spain, Sweden, Switzerland and Turkey), I thought that an account of pharmacy in Denmark would not be entirely uncalled for.

The number of pharmacies in Denmark (as is the case in most European countries) is limited by virtue of the control which the Royal Board of Health exercises over them. A privilege (license) is granted only to persons who are recommended by the Board as competent pharmacists, and then only where a real want of a pharmacy exists. There are two classes of privileges: *real* and (chiefly since 1842) *personal*. A real privilege is transferable, and can be bought by any one who has fulfilled all the requirements of the law. (All privileges granted before 1842 are practically considered real.) A personal privilege, on the contrary, is granted only for lifetime, and is, consequently, non-transferable. When the owner of such a privilege dies, the place is open for a new competition, unless the widow, as is generally the case, is granted permission for one or more years to conduct the business under the supervision of a *provisor*.

They are now trying to convert the "real" privileges into "personal" ones, but experience the same trouble as pharmacists do in Germany and elsewhere; and I think that Sweden is, as yet, the only country which has approached a satisfactory solution the nearest. Respecting "free trade," there exists the same hard struggle, as in other countries, between pharmacists with stores and those with-

out stores. The pharmacies emerged by degrees from the kitchen of the physician, until they became independent. The first privilege on record dates 1536 (Svane Apothek, Copenhagen); the six next, respectively, 1543, 1549, 1573, 1581, 1585, 1591. The whole number of pharmacies in 1870 was 115, to a population of 1,783,585, which makes an average of one to every 15,509; thus it will be seen that, as a rule, pharmacies in Denmark must yield quite a comfortable competency.

The only collection of ordinances (pharmaceutical laws) begins 1660. Already in 1668 yearly inspection of pharmacies was insisted on, but it was first in 1672 that a full ordinance appeared, detailing, in thirty paragraphs, the duties and requirements of the apothecaries, and, incidentally, those of the physicians. I may be permitted to extract a few of said paragraphs, in order to show that two hundred years ago the requirements were quite up to the modern standard.

None but regularly graduated physicians were permitted to prescribe. The pharmacies must be inspected at least once a year; twice or oftener, if deemed necessary. In said inspections the quality of drugs and preparations must be examined into, and whether the apothecaries in their prices adhered to the annually issued pricelists; likewise, accuracy of weights and measures. Poisons to be kept in a separate compartment (or room) under lock and key. Arsenic and sublimate only to be sold by the apothecary.

When poisons or active medicines (heroica) were prescribed, then the physician had to write out the name and quantity in full, neither abbreviations nor *chymical signs* being allowed. None but graduates must keep pharmacies, and every apothecary must keep at least one examined assistant. Further, they were enjoined to let their apprentices attend the professor of botany in his excursions, and, as far as possible, cultivate medicinal plants in their gardens. No prescribing over the counter allowed. All preparations had to be made by themselves, and electuaries (mithridate, etc.) to be prepared only in presence of several physicians, who had to duly label them and mark the date and quantity. In their preparations they had to conform to the Dispensatorium Hafniense, which from time to time was revised by the College of Physicians. In case of patients dying, the claim of the apothecary had precedence before any other claims. No *quid pro quo* (substitution) permitted; in case of doubt, they had to con-

sult with the physician. No physician allowed to keep or have part in a pharmacy.

In 1753 an ordinance forbid any apothecary to keep more than one store in the same town. In 1796 appeared the first detailed poison law, which, among other things, contains the proviso that arsenic can only be sold on certificate from the respective mayor or parson, and then only one ounce at the time. An ordinance, from 1843, permits the sale of lead water without prescription.

In 1810 apothecaries were required to notify the *district physician* whenever they intended to leave town for more than twenty-four hours, unless their assistant happened to be a graduate. In case the annual price-list was not strictly adhered to, the apothecary in fault was fined $50 for the first offence, $100 for the second, and, if caught a third time, he *lost his privilege*. An assistant would be fined one-half, and the third time declared *unworthy to serve* in any pharmacy in Denmark. (April 21, 1812.)

The first Pharmacopœia Danica appeared in 1772; the subsequent revisions respectively in 1805, 1840, 1850, (1857), 1868. There exist, besides, collections of formulas for the use of the chief hospital, for the military and for the poor.

Pharmaceutical life is as follows:

The apprentice must be at least fifteen years of age, and have left high-school from one of the two upper forms. If the latter be not the case, he has to pass a preliminary examination to show that he possesses a fair school education, and is proficient in Latin.

He has to serve four years before he is permitted to take his first degree (Physikat examen).

At this examination he is required to translate the Pharmacopœia, recognize drugs, read abbreviated prescriptions, put up prescriptions, make one of the easier preparations, and show a fair knowledge of practical chemistry, poison laws and doses, and of indigenous medical botany. If successful, he is declared *assistant*, and as such has a right to put up prescriptions on his own responsibility, but is not allowed to take charge of a store for a longer period than twenty-four hours. After further serving for a couple of years, or after attending two courses of lectures at the University, he may take his last degree, which makes him a *graduate* (candidat), and gives him equal standing with the apothecary (minus the ownership of a store).

This last examination requires him to make an official chemical

preparation, one or more tests, and a qualitative analysis (of any mechanical mixture), on each of which three he has to write a report (thesis). Said preparations (and analysis) being made, and reports written on three consecutive days within twelve hours each day, during which time he is not allowed to talk to anybody, or leave the room before his task is finished, nor are text-books allowed.

Then comes the theoretical part, which is conducted orally, and consists of questions in practical pharmacy, theoretical and practical chemistry, natural philosophy, botany, pharmacology. There are three degrees of qualification, according to the number of points made: *Laudabilis*, *haud-illaudabilis* and *non-contemnendus* (praiseworthy, not unpraiseworthy, not to be despised); graduates with the last degree generally try to make the examination over again. For exceptional proficiency in all branches there exists a fourth degree: *Laudabilis præ ceteris* (praiseworthy above all others). There is one peculiarity, which obtains in putting up prescriptions, viz., that every prescriptionist must put his name on the label every time a prescription is put up; in case of mistakes, it is at once traced to the guilty party.

In general, the Danish apothecaries are not permitted to sell other things but drugs and medicines (including cologne, pomatum, hair oil, chocolate); since, in small places, the legitimate part of business is not likely to be sufficiently remunerative, permission is granted to deal in groceries and general sundries besides. As a curiosity, it may be mentioned that such a small apothecary was backed in 1804 by an ordinance forbidding the grocers and other dealers in the same place to deal, among other things, in spirits of turpentine, purified saltpetre, licorice root, licorice, muriate of ammonia and guaiacum wood.

The roll of graduates was kept regularly only since 1770, and numbered, in the one hundred years ending 1870, 1140. Of those graduates who have distinguished themselves, must first and foremost be named H. C. Oersted (graduated 1797), the discoverer of electro-magnetism; W. C. Zeise (from 1815) is well known for his researches on mercaptan, thialic ether, xanthic acid and ether, the action of chloride of platinum on alcohol, etc.; E. A. Scharling (from 1828), through his researches on some starches, fats, oleoresins and balsams, is not entirely unknown as a chemist; Dr. William Neergaard, for many years Vice-President of the New York College of Pharmacy,

graduated 1831; Baruch S. Levy or Lewy (from 1835) became known through his investigations of the atmosphere, wax, etc., and his connection with the mint in Paris, France.

There exists two pharmaceutical journals: one, started in 1844 (*Archiv for Pharmaci og technisk chemi*), appears quarterly, and corresponds to the *American Journal of Pharmacy;* the other one is, properly speaking, a weekly sheet (*Pharmaceutisk Tidende*). Of associations there are two, viz., "The Apothecaries' Association," whose aims and purpose correspond to those of the American Pharmaceutical Association, and the "Pharmaceutical Association," which is more like our local pharmaceutical societies, besides a Pharmaceutical Relief Association.

The Royal Board of Health (Sundheds Collegium) consists of two physicians and two apothecaries.

In speaking of Danish Pharmacy, I must not forget to mention S. M. Trier, who in many respects stands in the same relation to Danish pharmacy as the late Prof. Procter stood to American Pharmacy. Mr. Trier started, and is still the sole editor of the above-named *Archiv*. He likewise set the different associations on foot, and it is no fault of his if pharmacy in Denmark is not officially recognized as equal with medicine.

HYDRATE OF CHLORAL AS A SOLVENT, AND SUGGESTIONS CONCERNING ITS EMPLOYMENT.

By Robert F. Fairthorne.

In an article published in October, 1871, on page 446 of this Journal, I suggested the use of chloral, when dissolved in oil, as a topical application, and thinking that its power as a solvent might open the way to a greater extent of usefulness, I would draw attention to its value when thus employed in connection with the alkaloids and a few other substances.

A solution consisting of nine parts of hydrate of chloral and three of water I find capable of dissolving the following substances to the extent named:

One grain of morphia is dissolved by a portion of the liquid containing twelve grains of the hydrate, one grain of veratria by a portion containing five grains, and one grain of atropia by a portion containing twenty grains.

These active principles should be in powder, mixed with the solvent in test-tubes, and heated by means of a water-bath, with occasional agitation.

The solutions thus made are in a convenient form for employment, either alone or when mixed with oils, ointment, or with glycerin. Camphor, too, is freely dissolved by them, and in some cases can be added to them with advantage.

Glycerin I find to be a convenient agent for forming solutions with chloral and the above-named substances, and the following will be found, when properly combined, to produce permanent and elegant preparations, viz.:

Chloral Glycerite of Morphia.

R.	Morphia (Powd.), ...	5 grains.
	Chloral hydrate, ...	1 drachm.
	Glycerin, ...	half a fluidounce.

M. Sec. art.

Chloral Glycerite of Veratria.

R.	Veratria, ...	5 grains.
	Chloral hydrate, ...	1 drachm.
	Glycerin, ...	half a fluidounce

M. Sec. art.

Ointment of Chloral and Veratria.

(Corresponding in strength to the Ung. Veratriæ, U. S. P.)

R.	Veratria, ...	10 grains.
	Chloral hydrate, ...	ʒi.
	Water, ...	6 drops.
	Lard Ointment, ...	half an ounce.

M. Sec. art.

Chloral Glycerite of Morphia and Camphor.

R.	Morphia, ...	5 grains.
	Chloral, ...	
	Camphor, ...	each 1 drachm.
	Glycerin, ...	half a fluidounce

M.

Lotion of Chloral and Iodine.

R.	Iodine, ...	20 grains.
	Iodide of Potassium, ...	6 grains.
	Glycerin, ...	1 fluidounce.
	Chloral hydrate, . . .	2 drachms.

M. Sec. art.

Chloral can also be combined with collodion, in which it dissolves after the addition of a few drops of alcohol.

COMMENTS UPON THE PROCESS OF PERCOLATION.

By J. B. Moore.

In the last number of this Journal, I published a paper on "The Extract and Fluid Extract of Guarana," etc., in which a formula for each of the two preparations was given. In constructing these formulæ and processes, it may have been observed by the reader that I did not adopt the tedious and no less troublesome and uncertain method of percolation recommended by the Committee of Revision of our present Pharmacopœia, but have adhered to the effective and satisfactory process of the late edition of that work.

As I consider that, in making either a solid or fluid extract of any drug, it is of primary and paramount importance that every care and precaution be observed to insure, beyond peradventure, the thorough and complete exhaustion of the substance. To insure this in all cases, a certain amount of menstruum is absolutely necessary, and even then, unless the operator be an experienced hand and an adept in the process of percolation, in many cases the result may be uncertain: at least, this has been my experience in careful attention to the process ever since fluid extracts began to become popular. And in the hands of very many, to whom the manufacture of fluid extracts will be entrusted, the thorough exhaustion of the drug will rarely be accomplished by the process of the Pharmacopœia, and with the small proportion of menstruum which it directs for these preparations.

The variable condition of different samples of powder of the same drug, when moistened by the quantity of menstruum directed in each particular case; the care, experience and judgment requisite, under any circumstances, in the preparation of the powder for packing, and in properly packing it when prepared, to insure a correct percolation, together with other circumstances involved in the process which might be mentioned, all tend, in an important degree, to render the result very uncertain, unless in the hands of experienced and skilful operators, of whom, unfortunately, there are comparatively few. There will also, I have no doubt, be many country physicians who will undertake this important process for the purpose of supplying themselves with fluid extracts for use in their own practice.

In the face of these considerations, and my own sincere convictions of the inadequacy of the officinal process for making reliable fluid extracts, I could not conscientiously adopt that process in any

formula that I should offer for the manufacture of any preparation of this class; nor do I believe that the officinal process for fluid extracts in our recent Pharmacopœia meets the approval of the majority of the truly practical pharmacists of this country. I heartily endorse almost every word written by Dr. Squibb in disapproval of this part of the Committee's labors. It is, I consider, an unfortunate change, and is certainly a retrograde step; for it must be remembered that, after the four days' preliminary maceration directed in the officinal process is concluded, percolation proper has just began, and the process may not be completed for a day or two more, which prolongs the operation to almost half the period required in the old maceration process for tinctures; consequently this most wonderful and excellent process is shorn of its greatest beauty. The great merit of the former officinal process for percolation consisted in the rapidity with which highly concentrated solutions of the active properties of any drug could be obtained—a rapidity which excited the admiration and almost the wonder of the intelligent pharmacist himself.

Pharmacy, it must be remembered, is no longer in its infancy in this country; it has not only thrown off its swaddling clothes, but has also outgrown the habiliments of its youth, and now steps forth in the full attire of manhood, and its ambitious and progressive spirit will not allow it to sanction any backward step without a murmur.

In this enlightened age of steam and telegraph, and, I might almost say, of aërial navigation, it is hard to ask the ambitious and progressive "Young American" pharmacist, after he has for years enjoyed the benefits and advantages of the modern and expeditious method of *direct* percolation, with all its beauties and excellencies, to return, as it were, to the very brink of the old and obsolete maceration process, of which the present officinal one for percolation is simply a slightly modified form. I can assure my readers that it will be with reluctance that he will thus return to the slow and antiquated way of doing things of his ancestors. You might as well ask him, if he desired to reach a certain point by public conveyance, to take a stage-coach in preference to a steam-car, or to take a trip in a Conestoga wagon, with the inducement held out of saving half fare, even though he be not in a hurry to complete his journey. Such is the temper of our American people, a little saving of expense is no inducement to endure slow and tedious processes of any kind.

Besides, the process presented to us by the Pharmacopœia for the

manufacture of fluid extracts, I consider an attempt to economize menstruum, at the risk of sacrificing the reliability and uniform strength of one of the most important class of our medicinal agents. The old direction, "Continue the percolation until the drug is exhausted," should never have been abandoned, but should have been adhered to as a *maxim* in all processes of percolation, in making all medicinal extracts, either fluid or solid, *no matter what it costs.* This would insure the thorough exhaustion of the substance. Then the pharmacist who best understands his business, and is most skilled in the process, could make his preparations the cheapest, and thus reap the benefits of his knowledge and experience in his economy in the use of menstruum—an additional stimulus to the acquisition of a more perfect knowledge of the process.

If the Committee had sufficient faith in their new-fangled plan for making fluid extracts, why did they not adopt it as a means of economy in the preparation of the solid extracts also? I cannot see why it is not as equally applicable in the one case as in the other. There is no part of the Committee's labors of which I so wholly disapprove as this.

Admitting, for instance, that the new process would yield reliable fluid extracts, I believe there are few pharmacists but would feel loth, for all that could be saved by such an economical process, to have a lot of percolators, with their contents, sitting about in their stores or laboratories for five or six days at a time, with the liability of their being capsized; and the process cannot be conducted so well in the cellar, unless in warm weather, owing to the lower temperature diminishing the solvent power of the menstruum.

The amount of alcohol saved, to the majority of pharmacists, in all the operations in making fluid extracts for their own use, would be but a mite, a thing too trifling to be considered in comparison with the importance of having good and reliable preparations, as, by proper management in all large, or even in the smaller operations, especially when a strongly alcoholic menstruum is used, much of the alcohol may be recovered by the use of the still.

Furthermore, I cannot see the necessity for so prolonged a maceration as is directed in the officinal process. I have paid some attention to the matter, in a multiplicity of operations, with a view to test this very point, and I never could perceive any advantage in extending the preliminary maceration beyond twenty-four to thirty-six hours,

even when deemed necessary in the case of substances that are toughest, most impenetrable and compact in texture, such as nux vomica and other similar substances, while in the great majority of cases from eight to twelve hours will suffice. This will give ample time, as I have remarked in a former paper (Art. Syrup Senega, *Am. Journ. Pharm.*, May, 1870), "for the powder to expand and its fibres to become thoroughly permeated and softened by the menstruum," and also for the solvent power of the menstruum to become exhausted, which is all that is requisite.

It must be remembered, too, that the manufacture of fluid extracts in drug stores is not an every-day operation; it is therefore impossible for the pharmacist to make himself familiar with, and to remember from time to time, the amount of pressure required for properly packing the various kinds of drugs; so that even the most skilful operator will occasionally make a mistake, and get his powder either too tightly or too loosely packed. In the former case, only a too tardy percolation may be the result, while in the latter an imperfect and unsatisfactory result is attained, a circumstance to be greatly deprecated; and in the new process there is no provision made to remedy or to compensate for such a defect or failure.

If the officinal process for percolation is so economical and menstruum-saving, why do not our large wholesale manufacturers of fluid extracts adopt it? for, certainly, if there is any class of manufacturers who would be likely to seek for and adopt any economical process that would yield *good* and *reliable* preparations, it would be the wholesale manufacturers. But, upon inquiry among our largest and most reputable manufacturers of this class of products, in this city, I find that none of them have adopted, in their establishments, the officinal process for fluid extracts. These gentlemen have too much at stake to rely upon any untrustworthy or uncertain process in the manufacture of their products.

Another very objectionable feature attending the long maceration in funnels or other percolators, directed in the officinal process, is the constant liability to loss of menstruum by evaporation during this long period of repose, and especially is this apt to be the case in hot weather, if a strongly alcoholic menstruum be used, as the subtle vapor of this fluid is hard to imprison. I have found India rubber cloth, when tightly secured over the top of the percolator, both convenient and useful for the purpose, but even this will sometimes per-

mit loss of vapor. When preliminary maceration is conducted in bottles, there is no difficulty attending the process at any temperature.

In operating by the officinal process I have, on several occasions. experienced trouble in consequence of loss of menstruum during maceration, and the consequent disarrangement of the mass in the percolator.

The officinal formulæ for fluid extracts limit the percolate to twenty-four fluidounces, just one-half, or even less than one-half the quantity that was employed in the late Pharmacopœia, to exhaust sixteen troyounces of drug; and the four days' *soaking* of the drug in that small portion of the menstruum which can find room in contact with the particles of the powder are supposed to compensate for the action of the other pint and a half of menstruum that was formerly considered necessary to exhaust the substance.

This plan, in part, is based upon the supposition that the first pint of percolate obtained from sixteen troyounces of a drug, in making a fluid extract, *if the process has been well managed*, contains about four-fifths of the entire soluble, active properties of the substance under treatment. But, if the process should *not* be well managed, then what will be the condition of things, and what the result? What the solution to this problem is, will. in many cases, be hard to say. and I will only leave it to the intelligent and conscientious pharmacist to conjecture. And, pray tell me, also, how often will the process be well managed in the hands of the majority of those who will undertake the apparently simple process?

When I am percolating a substance in making a fluid extract, and when, after I have secured the prescribed quantity of percolate, I still find the fluid dropping from the percolator quite highly colored, and with the characteristic taste and odor of the drug strongly marked—as has been my experience over and over again in working the officinal processes—I can never rest satisfied, nor can I conscientiously allow myself to stop here, I feel, if I did, as though my finished extract will be deficient in strength, or at least of very indefinite composition. Yet, it may be said that the drug is practically exhausted of all that is really medicinal. This *may* be so, but appearances are against such a supposition or inference, and I cannot, under such circumstances, but be dissatisfied with such results, and for the sake of calming my fears and satisfying my ambition, I always feel

tempted, for all that it will cost, to continue the percolation until I have stronger evidence that the drug is exhausted.

There is also another prominent feature in the officinal process for fluid extracts, of which I desire to say a word, and that is in regard to the use of glycerin in nearly all these formulæ.

I have had much experience in the use of glycerin in practical pharmacy, and there is no one who holds a higher opinion of it than I do, both as a solvent and preservative of the active properties of many drugs; but, I must confess, I have never found it so nearly a universal solvent and preservative as the authors of the formulæ for fluid extracts of our Pharmacopœia seem to have discovered. In reviewing these formulæ, I am led to believe that glycerin must possess latent qualities, in this respect, that have escaped my notice. Glycerin is certainly an agent of inestimable value in pharmacy, but I do not approve of its indiscriminate use—and especially when employed as a menstruum—in percolation in making fluid extracts, when the object is to obtain saturated or highly concentrated percolates. In such cases, it must be handled with judgment, and *only* by the hand of *experience*, or it *may* prove a very dangerous impediment to success rather than a means thereto. In the formulæ for fluid extracts in our Pharmacopœia, I think it has been used with a too lavish hand. There are some of these formulæ from which, I cannot but believe, it would have been better to omit it.

It should be held as a cardinal principle, that glycerin should never form a part of any menstruum for fluid extracts, unless it is known to be a better solvent for the active properties of the drug to be exhausted than either alcohol or water, or these two combined, for, by reason of its greater density, it in a measure blunts, as it were, and interferes with the solvent action of the latter liquids. And, when its presence is necessary as a solvent, or when its retention in the finished product is desirable or necessary as a preventive against decomposition or deposit, it must be employed, as I have before remarked, with judgment. It can rarely, in any case, be used with advantage in greater proportion than from one-eighth to one-fourth of the bulk of the menstruum, notwithstanding its wonderful solvent power over rhubarb, cinchona and wild cherry bark, and other articles that might be named. Yet, if it forms just a little too large a proportion of the menstruum, even in such instances, it enfeebles the action of the menstruum and percolation proceeds in an unsatisfactory manner.

There are many of the officinal fluid extracts, however, in which glycerin has been very judiciously employed, not only in view of its solvent action, as a part of the menstruum, but also in view of its presence rendering the finished preparations more stable and less prone to change or deposit by keeping.

Much has been said and written within the last decade upon the subject of percolation and the manufacture of fluid extracts, and many suggestions and new plans have been proposed, but there has been none as yet offered that is worthy to supersede the late officinal process. It, of course, has its defects, and is still susceptible of much improvement, but with all its faults I decidedly prefer it to any of the new plans yet offered.

Among these latter there is one especially deserving of notice. I refer to that one proposed by Dr. Squibb, which is known by the title of "Repercolation." This plan, like the present officinal process, has for its object and chief merit the economy of menstruum. Although it may be a very elaborate, and, in scientific and careful hands, perhaps, a very thorough process, yet it is, unfortunately, marred by the very objectionable feature of being troublesome, very complicated, and requiring for its performance an amount of experience and skill not possessed by ordinary pharmacists, and I am satisfied that there are but few who would ever adopt it in the ordinary operations of a retail store. It might, perhaps, be advantageously employed, as a means of economy in the use of menstruum, in the extensive operations of large manufacturing establishments like that of Dr. Squibb, with one of his superior skill to supervise its management; but, like the officinal process, for all that could be saved by it in the small operations of the retail pharmacist, it would not pay for the risk of failure and the extra trouble, care and attention necessary to insure successful and satisfactory results.

No new process which contemplates so radical a change in any important operation of pharmacy as that of percolation should ever be adopted by the Revisory Committee of our Pharmacopœia until its merits have been thoroughly tested and its claims well established.

The Committee, in the preface to their work, say, "it is no part of its mission to lead in the path of discovery. It should gather up and hoard for use what has been determined to be positive improvement, without pandering to fashion or to doubtful novelties in pharmaceutical science." But I am sorry to say I think they departed

from these wise and conservative principles when they accepted and adopted their new process for percolation, which at the time of its adoption was simply a fledgeling in pharmaceutical practice.

Philadelphia, November, 1874.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Cinnamic Acid in Tea.—Dr. H. Weppen, while operating upon ten kilograms of tea-leaves with the view of preparing coffeina, was unable to get this alkaloid by the ordinary process, but obtained over five grams, about 0·1 per cent., of cinnamic acid. The leaves had the odor of ordinary tea, and were smaller than those of Hyson and Pecco tea, but otherwise agreed entirely with *Thea chinensis.* The author suspects a fraud, practised in China, and that this tea had been flavored with storax or a similar substance.—*Archiv d. Phar.*, 1874, *July*, *pp.* 9–14.

Leras' Soluble Phosphate of Iron, a nostrum manufactured in Paris. was analyzed by Dr. H. Vohl, of Cologne, and found to be a solution of five grams ferric sulphate and ten grams crystallized pyrophosphate of sodium in one liter of distilled water.—*Ibid.*, *pp.* 14–16.

Preparation of Iodates and Iodic Acid.—Prof. E. Reichardt recommends to treat iodine or iodide with chlorinated lime, when iodate of calcium is rapidly formed and partly precipitated ; after the oxidation is completed, the whole is faintly acidulated, heated to boiling, and iodate of calcium, $CaI_2O_6,5H_2O$, readily obtained pure by crystallization. On exposure, the calcium iodate loses water ; to prepare iodic acid, it is therefore necessary to determine the exact amount of calcium in each sample of the iodate, and to decompose it by its equivalent of sulphuric acid, removing the calcium sulphate and crystallizing the iodic acid.—*Ibid.*, *Aug.*, *pp.* 109–111.

Test for Veratria and Morphia.—While experimenting with Schneider's* test for morphia, Dr. H. Weppen observed that if veratria is mixed with twice to four times its weight of sugar, a little sulphuric acid will at first produce merely a light-yellow coloration, which, after a while, changes into green, and finally to a beautiful blue : the green and blue colors are more rapidly produced if, to the acid mixture, a

* American Journal of Pharmacy, 1873, p. 545.

little water is very cautiously added, or, better still, if a small drop of bromine water is used. The latter increases also the delicacy of the morphia test to such an extent that 0·00001 gram is plainly colored rose-red, of the same depth as 0·0001 gram of morphia, if tested without bromine water. The author regards this test as being of equal value with the reaction with ferric chloride and with Froehde's test (molybdate of sodium dissolved in concentrated sulphuric acid), and to even possess the advantage that pure morphia is not requisite, and that it will be successful even if applied with little skill.—*Ibid.*, *pp.* 112–116.

Iodine as a Test for Volatile Oils.—K. Calmberg reports that the relative proportion of iodine and oil has a marked influence on the result; if three or four drops of peppermint are added to about half a gram of iodine, the mixture will become heated and evolve vapors, which is not the case if, to little iodine, much oil of peppermint is added.—*Ibid.*, *p.* 127.

Saccharate of Iron.—E. Hoffmann recommends the following process as an improvement on the one officinal in the German Pharmacopœia (see *Amer. Jour. Pharm.*, 1873, p. 161):

10 parts solution of ferric chloride, spec. grav., 1·48, containing 15 per cent. metallic iron;
$4\frac{1}{4}$ p. powdered sugar, dissolved in an equal weight of water;
12 p. pure carbonate of sodium, dissolved in 24 p. of water;
5 p. caustic soda or 6 p. potassa solution, spec. grav. 1·33;
400 p. boiling water, and
12 p. of powdered sugar.

The ferric chloride and sugar solution are mixed in a large porcelain dish, and the carbonate of sodium is rapidly added in four or five portions, permitting the evolution of carbonic acid after each addition; the caustic alkali is now added, when the precipitate will completely dissolve, and after a few minutes the solution is poured into the boiling water. The occurring precipitate settles readily, is washed six times with hot water by decantation, collected upon a filter, or upon muslin covered with filtering paper, drained and slightly pressed. After the addition of the powdered sugar to the precipitate, the mixture is evaporated in a porcelain dish by means of a steam-bath, and when of the consistence of honey, poured upon flat plates and exsiccated in the drying closet. Enough sugar is now added to make the

whole weigh fifty parts, triturated with the addition of a few drops of alcohol, and again dried.

If, in the above formula, glycerin is substituted for the sugar a glycerite is obtained, which, in the author's hands, has kept entirely unchanged for two years. Made to contain 10 per cent. of iron, it has a handsome brown-red color, and the consistence of a soft extract; if representing 3 per cent. of iron, it has the consistence of glycerin.

This glycerite is a very delicate test for grape sugar. Suitably diluted and heated with a trace of the latter, ferrous chloride is formed, which is recognized, after supersaturation with hydrochloric acid, by the blue color produced with ferridcyanide of potassium. Cane sugar, similarly treated, does not show this reaction.—*Ibid., pp.* 134–139.

Adulterations and Substitutions.—E. Heintz enumerates the following, which he met in the German drug-market: Formic acid spec. grav. 1·2, was found to be only 1·12, and its actual value was therefore little more than one-third of its pretended strength. Impure carbolic acids sold as containing 50 per cent. of acid, were found to contain only 15 and 25 per cent.; another sample, said to contain 60 per cent., yielded only 35 per cent. of carbolic acid. One lot of nine different volatile oils, had to be returned, all proving to be adulterated. Prepared oyster-shell was found to consist merely of burned bones.—*Ibid., p.* 142.

Iron by Hydrogen.—P. Carles estimates the amount of metallic iron in this preparation by operating upon 0·1 gram, mixed with 5 grams of hot water in a flat-bottomed dish, with a solution of 4·53 grams of iodine and 5 grams of iodide of potassium, in 100 c.c. water. 1 c.c. of this solution combines with 0·01 gram of iron. If the iron is greasy, has been considerably heated, or is superficially oxidized, the application of heat to the mixture may have to be repeated. That all the iron has combined with the iodine, is evidenced by the residue, which remains, not evolving hydrogen with muriatic acid. A separate portion of the iron is treated with hydrochloric acid, and the resulting gas passed through a solution of sugar of lead, in order to estimate the sulphur as sulphide of lead. The undissolved residue contains sand, carbon, &c.

The author gives the following analytical results of different samples:

1. Silica and carbon, 0·90; iron, 75·0; oxide of iron, 24·0: sulphide of iron, a trace.

2. Silica and carbon, 1·10; iron, 52·0; oxide of iron, 46·50; sulphide of iron, 0·20.

3. Carbon and sand, 5·30; iron, 58·0; oxide of iron, 34·50; sulphide of iron 2·07.

4. Carbon and silica, trace; iron, 99·0; oxide of iron, sulphur, sugar and loss, 1·0.*

5. Porphyrized iron of unknown origin, is with difficulty assayed by the proposed method: Carbon and silica, 7·10; iron, 70·0; oxide, 20·10; sulphide, 2·70; phosphorus and loss, 0·10.

6. Carbon and silica, 0·80; iron, 58·70; oxide, 40 0; sulphide, 0.20.

7. On being dissolved in muriatic acid, it evolved much gas of a disagreeable odor, containing carburetted and phosphuretted hydrogen. Residue, 0·40; iron, 54·0; oxide, 45·0; sulphide, 0·40.

8. Carbon and silica, 0·02; iron, 73·0; oxide, 24·0; sulphide, 2·90.

9. Carbon and sand, 11·59; iron, 32·0; oxide, 55·20; sulphide, 1·20.

The author concludes that the reduced iron of commerce is not carefully prepared, and suggests that it be replaced by other ferruginous preparations, which the pharmacist may readily obtain in a state of purity, which can be assayed with exactness, and whose absorption is quite certain.—*Jour. de Phar. et de Chim., Sept.*, 1874, pp. 178–181.

RAPID PREPARATION OF MERCURIAL OINTMENT.

By George Bayle.

The longest and the most fatiguing of all pharmaceutical operations is the extinction of mercury in preparing mercurial ointment. To shorten the time a great number of processes have been successively proposed. Among the most successful are those by M. Le Boeuf and M. Pons, and that which consists in extinguishing the mercury in a small quantity of old mercurial ointment. However, in practice these

* This iron had been mechanically reduced to powder, and then inclosed in gelatine capsules, to prevent oxidation. Each capsule is represented to contain 0·1 gram of iron, but by carefully weighing the contents of three larger and three smaller capsules, the following amounts were obtained: 0·065, 0·061, 0·040, 0·035, 0·041 and 0·040.

different methods do not give the expected result of quick operation, without finally introducing foreign non-volatile substances into the mercurial ointment.

In following exactly the manipulations indicated hereafter, a faultless ointment, corresponding to the requirements of the new Codex, is always obtained in fifteen minutes.

Put into a mortar 100 grams of mercurial ointment from a previous operation, and 500 grams of mercury; with rapid trituration add gradually 30 grams of sulphuric ether, and in a few minutes the mercury will be divided into imperceptible globules; then add about 100 grams of lard, and after several minutes of vigorous trituration, examine in the usual way whether the extinction of the metal has been effected. If some globules remain visible, the addition of a little ether and some trituration will complete this portion of the process. The ointment is then finished by adding the requisite quantity of lard.

It is very evident that the rapidity of the manipulation is the same, whatever quantity of the ointment is to be obtained.

By using benzoïnated lard, 960 grams, with which 40 grams of white wax have been incorporated at a moderate heat, the ointment will in every respect be identical with that of the formula of the new Codex. In winter the ointment is sufficiently consistent without the addition of wax.—*Bull. Soc. Roy. de Phar. Brux.*, 1874, *p.* 286, from *Jour. de Chim. Méd.* C. J. M.

ON A FALSE WHITE GINGER.

By M. Patrouillard, Pharmacist at Gisors.

Guibourt, in his "Histoire naturelle des drogues simples," says about white ginger: "It is possible to prepare a false white ginger by peeling the bark of grey ginger and bleaching it with sulphurous acid, chlorinated lime, or merely coating it externally with lime."

Some time ago I found in the drug market ginger bleached by the aid of one of the substances named above. The ginger in question was of a dull white, and the outside was not striated longitudinally like the genuine white ginger. It is covered with a white dust, which comes off very easily by touching it or scratching it with a knife. On examining this powder through the microscope, it will show a small quantity of granular, spherical, or orbicular, colorless bodies,

which, however, turn deep blue when impregnated with tincture of iodine; they are, therefore, of an amylaceous nature. There are likewise many opaque, very small, irregular fragments, on which the tincture of iodine has no action apparent under the microscope.

A certain quantity of this powder was treated with dilute acetic acid. The liquor, containing an excess of the acid, gives immediately a white precipitate with oxalate of ammonium, consequently insoluble in acetic acid, but easily soluble in chlorhydric acid. This precipitate is, therefore, oxalate of calcium.

These experiments show that the powder detached from the ginger consists mainly of a calcium compound, undoubtedly carbonate of calcium, and that the ginger was whitened with lime. This confirms the views of Guibourt referred to above. Such a falsification should not be tolerated; first, because this false white ginger is much less active medicinally than the genuine, and, secondly, because its commercial value is five times less than the genuine white ginger.*—*Pharm. Jour. and Trans., April*, 1874, *p.* 831. C. J. M.

NEUTRAL HYDROBROMATE OF QUINIA.†

By M. Boille.

Two years since, the author brought under the notice of the French Academy of Medicine an acid hydrobromate of quinia. Further investigation of its properties has led him to the preparation of the neutral hydrobromate, which he considers to be far superior to the officinal quinia sulphate, both as to solubility in water and richness in quinia. The neutral hydrobromate is prepared by double decomposition of bromide of barium and neutral sulphate of quinia, and is thus easily obtained pure and free from chloride; the great solubility of bromide of barium in alcohol facilitating the removal of any chloride, which is insoluble. The two salts are dissolved separately in alcohol, and the solutions filtered. The neutral sulphate of quinia solution is gradually added in slight excess to the bromide of barium solution, until a precipitate ceases to form. The solutions, diluted with water,

* Mr. Th. Gardside has recently examined a sample of artificially-bleached ginger. The inorganic coating gave by analysis the following results for 100 parts: chloride of calcium, 4·98; carbonate of calcium, 87·12; sulphate of calcium, and other salts, 7·90.

† Journal de Pharmacie et de Chimie, vol. xx, p. 181.

are distilled to recover the alcohol, afterwards filtered, to separate the sulphate of quinia which has been precipitated by the water, and then concentrated sufficiently to induce rapid crystallization. The addition of water is indispensable for the concentration and crystallization; the hydrobromate, being soluble in alcohol in all proportions, redissolves as the alcoholic liquor is concentrated.

Neutral hydrobromate of quinia is also obtained easily by dissolving hydrate of quinia in weak hydrobromic acid. Upon cooling the salt forms beautiful nacreous crystals; redissolved several times in water, it crystallizes in the basic state.

Neutral hydrobromate of quinia has for its formula:

$$C_{20}H_{24}N_2O_2,HBr,H_2O.$$

	Experiment.	Theory.
Water, . . .	4·80	4·25
Bromine, . .	18·26	18·91
Quinia, . .	75·20	76·59

The formula for acid hydrobromate of quinia is:

$$C_{20}H_{24}N_2O_2,2(HBr),3H_2O.$$

	Theory.	Experiment.
Water, . . .	10·00	10·00
Bromine, . .	24·62	28·84
Quinia, . .	60·00	50·60

The crystallization of the acid hydrobromate of quinia in well-defined regular facets distinguishes it from the hydrochlorates, which crystallize silky in filaments. The former crystals do not become resinous in the presence of an excess of hydrobromic acid, and are prepared by dissolving quinia in an excess of hydrobromic acid; they are soluble in water and alcohol.

The solubility of neutral hydrobromate of quinia is stated by the author to be very remarkable, it being soluble in five times its weight of water. This solubility of the neutral salt he considers to be a property of high therapeutic value, as it should be better tolerated than the neutral sulphate, and more active, being more quickly absorbed. More soluble and more rich in quinia than the acid sulphate, he thinks it might replace the latter advantageously in various liquid preparations, without causing the least irritation of the mucous membrane. Further, it combines the properties of bromine and the salts of quinia, whilst its easy absorption allows of its internal admin-

istration. On the whole, M. Boille considers that its properties give it a great superiority over all other compounds of quinia.—*Pharm. Journ. and Trans.*, *October* 17, 1874.

SYRUP OF BROMIDE OF IRON.

By M. H. Stiles, M.P.S.

I noticed in a recent number of the Journal a formula for syrup of bromide of iron, taken from a French paper on the subject. About six weeks ago, I had occasion to prepare some of the syrup for a prescription. This was made to contain three grains of bromide of iron in each fl.ʒi., which, from inquiries I have since made, is the strength usually recommended in this country.

The syrup made by M. Prince is only about one-seventh this strength, and is scarcely in accordance with English ideas of what such a preparation should be. The following is the process I adopted:

Take of—

Thin Iron Wire, free from rust.	½ oz.
Bromine, ...	320 grs.
Distilled Water, ...	1 oz.

Put the wire and water in an 8-oz. flask, the lower portion of which is placed in a vessel of cold water, add the bromine gradually, corking the flask after each addition, and taking care that one portion is neutralized before another is poured in. When all the bromine has been added, heat the flask gently until the brown color disappears, and filter the solution, whilst hot, through paper; wash the wire with a little distilled water, filter the washings, add them to the filtrate, and make the resulting liquid measure fl.℥ii. Mix this with fl.℥xvi. of syrup. One fluid-drachm contains three grains of $FeBr_2$.

If the flask be not kept cool, and the process controlled in the manner directed, the action becomes so violent that a considerable portion of the bromine is lost.

Bromide of iron is also given in combination with bromide of quinia or bromide of strychnia, or with both, the amount of these in fl.ʒi of the syrup being one grain and $\frac{1}{32}$ grain respectively.—*Pharm. Journ. and Trans.*, *August 29th*, 1874.

Hull, July 27th, 1874.

ON SOME PREPARATIONS OF ERYTHROXYLON COCA.

By E. B. Shuttleworth.

Some time ago, a sample of coca leaves, weighing several pounds, was forwarded to the writer, and was accompanied by a request that

experiments should be made with a view of determining the most eligible form in which the drug might be administered. As the coca plant is coming more frequently into notice, and as its powerful remedial properties favor the idea that, sooner or later, it will be introduced into the Materia Medica, I have thought it advisable to offer a record of the result of these experiments, together with that of others made for the purpose of ascertaining the best formulæ for possible preparations of the drug.

In devising formulæ of this kind it is essentially necessary that the nature and properties of the active principle or principles of the drug operated upon be well understood. The literature of coca does not, however, afford information of as precise and thorough a character as might be desired, but, for practical purposes it may, perhaps, be deemed sufficiently definite. Niemann * made a proximate analysis of the plant, and gives, as its constituents, a crystallizable basic substance (cocaina), a volatile odoriferous substance, a peculiar tannin (cocatannic acid) and a waxy body termed coca-wax. Stanislas Martin † found a peculiar bitter principle, extractive, chlorophyll, a substance analogous to theina and salts of lime. Maisch ‡ was led to think that the leaves contained a volatile alkaloid. This supposition was subsequently confirmed by Lossen, § who isolated this principle, and, at the suggestion of Woehler, who was associated with him in these investigations, named the new alkaloid *hygrina.* Lossen also found that cocaina, when heated with muriatic acid, was decomposed, benzoic acid and a new base, *ecgonia*, being produced. This fact operates against attempts to extract cocaina with acid liquors, and its importance was recognized by Lossen who recommended the abandonment of Niemann's plan, in which acidulated alcohol was employed, and the substitution of infusion with simple water.

Thus far, then, we have as important and tolerably well established constituents of the leaves, cocaina, hygrina, cocatannic acid, coca-wax, and a volatile oil, to which the odor of the plant is due; of these, the first-named alkaloid is undoubtedly that to which attention should be principally directed in any attempt to make a preparation representing the active medicinal properties of the plant.

* Arch. Pharm. ciii, p. 120 and 291, Chem. News, July, 1860.

† Jour. de Pharm. 1859, p. 283.

‡ Am. Jour. Pharm. 1861, p. 496.

§ Ann. Chem. Pharm. cxxi, p, 347.

The characteristics and properties of the alkaloid may be concisely given as stated by Watts: * "Cocaina crystallizes in small, colorless, inodorous poisons; it has a slightly bitter taste, and produces temporary insensibility of the part of the tongue with which it comes in contact. It is soluble in 704 parts of water at 12°C., (53·6°F.) more soluble in alcohol, and still more so in ether. It melts at 98°C., (208·4° F.) and solidifies to a transparent mass, which gradually becomes white and crystalline. At a higher temperature, a very small portion appears to volatilize undecomposed, but the greater portion is decomposed, yielding ammoniacal products. Cocaina dissolves without color in strong nitric, hydrochloric and sulphuric acid; the last solution becoming black when heated. It is strongly alkaline, dissolves in dilute acids, and neutralizes them completely." In most of its reactions cocaina resembles atropia, but that with carbonate of ammonia is different, and the melting points of the two alkaloids are not coincident. The formula assigned to it is $C_{16}H_{19}NO_4$.

Hygrina, the other alkaloid constituent of coca, assumes, at ordinary temperatures, the form of a thick oil, of yellowish color. It possesses a strong alkaline reaction, a burning taste, and an odor of trimethylamin. It combines with hydrochloric acid, forming a deliquescent salt. It is to some extent soluble in water, and dissolves readily in alcohol and ether. It does not appear to be poisonous.

Those points which bear directly on the subject of this paper, and which are embodied in the above particulars, are, that coca contains two active principles on which its medicinal virtues depend; that one of these is mutable in the presence of acids, the other volatile, and, therefore, liable to be dissipated by heat; and that both are soluble in water and alcohol. We are not, however, informed in regard to the peculiar state of combination in which these alkaloids exist in the plant. That they are combined with some acids appears probable from the fact that the addition of a little lime, or other alkali, develops, to a much greater extent, the characteristic taste, and also the activity of the drug. This has been recognized, for ages, by the millions of persons addicted to the use of coca. Von Tschudi, Pöppig, Herndon, Weddell and other travellers affirm that, in prepearing the leaves for chewing, the addition of lime, *llipta*, the ashes of plants, as *Chenopodium Quinoa* or other alkaline substance, is generally made. A simple infusion is, however, often employed, and

* Dictionary of Chemistry, i, p. 1059.

the full effects of the medicine appear to be realized from its administration. This is the oldest, and almost the only preparation of coca which has been used, and to this attention may, with propriety, be first directed.

Infusum Cocæ.—Take of coca, bruised, one ounce; boiling water, ten fluidounces. Infuse in a covered vessel, for one hour, and strain.

This preparation resembles in appearance, and odor, an infusion of ordinary green tea. Its taste is slightly bitter and alkaline, recalling infusion of spearmint. The benumbing sensation, experienced when chewing the leaves, is not so perceptible in this infusion. By applying to the dregs a slight pressure, about eight ounces of liquid may be recovered. Each ounce of the preparation will therefore be equivalent to a drachm of the leaves. The dose may be from one to two fluidounces.*

Ext. Cocæ Aquosum.—Coca in moderately coarse (No. 40) powder; water a sufficiency. Macerate the coca with four times its weight of water, for 12 hours, at a temperature not exceeding 120°F. Transfer to a percolator and exhaust with water. Evaporate, by means of water-bath, to the consistence of an extract.

The extract, thus prepared, is of a dark-brown color, and bitter but not very characteristic taste, 100 parts of leaves yield 36 parts of extract. The dose may be from 15 to 30 grains.

Ext. Cocæ Alcoholicum.—Coca in moderately fine (No. 50) powder; alcohol, sp. gr. ·838 a sufficiency. Moisten the powder with alcohol and pack tightly in a percolator. Add alcohol, and contiune the percolation until the powder is exhausted. Evaporate the percolate, by means of a water-bath, at a temperature not exceeding 150°F., until the extract is of proper consistence.

This extract is much superior to that prepared by water, possessing, in the highest degree, the characteristic taste and odor of the plant; and, as far as I have been able to ascertain by experiments upon myself, possessing also in full its medicinal properties. It is of a green color, resembling extract of Indian hemp, and is appar-

* A description of the therapeutical effect of coca does not properly come within the limits of this paper. But for information regarding the remedy, as administered by infusion, the reader is referred to a Prize Essay on the subject, written by Dr. Mantegazza, of Milan, and of which abstracts may be found in the *Pharm. Journ. and Trans.*, 1860, and the *Druggists' Circular*, vol. iv, p. 253.

ently resinous in character. This characteristic is attributable to the coca-wax or other concrete oily substance with which the extract is mixed. When exposed to the air the extract does not harden, but slowly attracts moisture, becoming, in time, quite liquified. I regard this extract as one of the best forms in which coca can be administered. It can be readily formed into pills, and is perfectly reliable. The product from 100 parts of the leaves is 15 grains. The dose may be from 10 to 20 grains.

Ext. Cocæ Fluidum.—I have not had time to experiment upon this preparation, but would suggest, as a menstruum, alcohol of sp. gr. ·835 or ·838; the reservation of a portion of the peroclate equivalent to three-fourths of the weight of the leaves employed; and evaporation of the remainder, at a temperature not exceeding 150°F.

Tinct. Cocæ.—A tincture containing four ounces of coca to one imperial pint of proof spirit, or diluted alcohol, may be prepared by percolation, but such a preparation does not appear to be advisable or necessary. The large quantity of alcohol which each dose would contain, might entail therapeutical complications which it would be well to avoid. For administering the drug in a liquid form, the infusion will be found as simple and reliable as any, and by the addition of a small quantity of alcohol—say one-eighth part—it might be preserved from change for a reasonable length of time.—*Canadian Pharm. Journ., Nov.*, 1874.

NOTE ON THE ANALYSIS OF SUGAR.

By J. M. Milne, Ph.D.

The determination of the fruit sugar in samples of raw sugar is a matter of no difficulty in the hands of a careful manipulator, but there are a few points in detail which are deserving of attention. The usual plan, still in use in some laboratories, of taking a weighed quantity of the sample, dissolving in water, and making up to a given bulk, and using the liquid so obtained for the determination of the fruit sugar, is by no means always to be relied on. There is no doubt, I think, that many dark-colored sugars contain other substances (probably albuminous) besides the fruit sugar capable of reducing copper solution, and which must first be separated before correct results can be obtained. The method recommended by Fresenius, of adding lead acetate to the sugar solution till no further precipitate is formed, may

be advantageously employed for this purpose. While in some samples the same amount of fruit sugar is found in the solution *before* percipitation with lead as that obtained *after* the addition of that reagent, in others the difference is very marked. The following results, obtained from a sample recently submitted to me for analysis, will illustrate this:—The sugar solution *without* treatment gave 4·90 per cent. of fruit sugar, while in a measured quantity of the same solution *after* precipitation by lead acetate, the amount found was 3·27 per cent.

The following method of procedure answers very well, and is employed by me for *all* sugar samples in which fruit sugar is to be determined:—5 grms. of the sample are dissolved in a moderate quantity of water, and the insoluble matter allowed to subside. The supernatant liquid is then carefully poured into a 100-c.c. flask, the insoluble treated with more hot water, and finally collected on a small weighed filter, and the washing continued till the flask is about three-quarters full. To the sugar solution a little solution of tribasic acetate of lead is added, the whole well shaken, and the precipitate allowed to subside. The clear liquid is then tested with a drop or two of acetate, and, if no further precipitate is produced, the contents of the flask are cooled to the proper temperature, and finally made up to the mark with water, the whole being thoroughly mixed. When the precipitate has subsided, the liquid is passed through a *dry* filter into a clean, dry glass, and, when sufficient has passed through, is ready for the fruit-sugar determination. If it is desired to determine the extractive matters *directly*, the percipitate in the flask is washed several times by decantation, and then placed on the filter (previously weighed), and the washing continued till a drop of the filtrate no longer gives a precipitate with H_2S; the filter and contents are then dried as usual. By the above method of treatment, a clear, colorless solution is always obtained, which renders the further operations with the copper liquor much easier.—*Chem. News, August 28th*, 1874.

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THE KOUMIS CURE.

The following interesting information respecting koumis, the method of its preparation, and the koumis establishments at Samara, is taken from a description written on the spot by a correspondent of the *Daily News*. Samara is the capital of a comparatively new government,

carved out of the neighboring governments of Simbirsk, Saratov and Orenburg, and situated on the left bank of the Volga, on the borders of Orenburg, on the high road to Asia.

"It has long been known that the Tartar tribes inhabiting what is generally known as Independent Tartary (no longer, however, since General Kaufmann's visit, particularly independent) and the nomad tribes scattered over its northern frontiers, the Turkomans and the Kirghis, as well as other tribes more or less akin to these, such as the half-nomad Bashkirs of Orenburg, all used fermented mare's milk, which they call koumis, not only as a beverage, but as a substantial portion of their daily food. It was reported to combine the nourishing properties of milk with the invigorating qualities of alcohol; indeed, among its other virtues it was said to exhilarate and to intoxicate. It came into the heads of some Russian medical men, of whom, I believe, Dr. Portnikoff, of Samara, to have been one of the first, that this koumis might possibly possess medical properties as well. It was observed that consumption and its cognate disorders were unknown among the tribes who habitually drank koumis. Starting from this observation, experiments were made on the *vilia corpora* of consumptive patients, and with highly beneficial results. Upon this Dr. Portnikoff started a koumis establishment at Samara. Its situation offered him many advantages. In the first place, from its position on the Volga, it was at least approachable, whereas Orenburg, the nearest spot where koumis could be said to be indigenous, was the *ultima thule* of the civilized world. This new establishment on the Volga was the means, therefore, of pushing the koumis outposts 300 miles westwards. In the next place, it was observed that pasturage at Samara was similar to that at Orenburg. It is supposed that the virtue of koumis consists in a great measure in the rich quality of the mare's milk, which again is dependent, not only on the race of mares, but on the pasturage on which they are fed. All these are propositions which are more or less vehemently affirmed and denied by the different camps into which koumis connoisseurs are divided. For my own part, without giving any opinion on so profound a subject, I would only venture in a very general way to observe that it is a very old idol of the human mind to mistake accidents for essentials, and to argue that, because things have been invariably seen in conjunction, they must necessarily be connected as cause and effect. However this may be, the *haute école* of koumis

connoisseurs maintain that koumis, to be efficacious, must not only be composed of the milk of thorough-bred Tartar mares, but of thorough-bred Tartar mares fed on the rich covil of the steppes.

"For covil (*Stipa pennata*) is the technical name of the grass which grows on the steppes, and which is the favorite food of the mares. It flowers prettily in a kind of white silvery wave for about a month at the beginning of June, and makes a not ungraceful ornament for the hair, especially of blondes. It is only the tender grass, not the flower, of the covil, which the mares graze on. In the midst of the covil the *Absinthum tartaricum* grows abundantly, emitting the sweetest smell. I could not help fancying that the two must form part of the vaunted pasturage of the steppes. It smelt so sweet that I thought if I had been a Tartar mare I should certainly have made it a *bonne bouche*. I was glad to hear that my error had been shared by a learned German doctor, who, writing *à priori* in his study in Livonia on the medical properties of absinth, suggests that as it is found in large quantities on the steppes where the Tartar mares graze, part, at any rate, of the virtue of koumis may be attributable to his favorite herb. It is to be hoped that the learned doctor's theory does not depend on his illustration, for it is, unfortunately, not founded on fact. The mares do not touch the absinth. The grass of the covil is their chief diet. The absinth, with its perfume, is there because the Tartar mare is an epicure, and she loves to regale one sense with the sweet odor of the absinth while the young blade of the covil administers to another.

"The Tartar horse about whom all this fuss is made is the most insignificant-looking brute dignified with the name of horse I ever saw. He exactly corresponds to the pictures one has seen, and the descriptions one has read, of the nondescript animals upon which the Cossacks were mounted during the invasion of France in 1812. Small, shaggy, and impoverished-looking, he hasn't the deviltry in his eye which distinguishes the little Shetland pony. It is only when he is in action that he gives you a taste of his quality. He then bristles up, buckles to his work, and you begin to perceive, when you have already been half a day's journey, the enduring qualities of the little animal you have been condemning. Many days' continuous travelling at the rate of 150 versts (100 miles) a day will give you some idea of his powers. Those who deny the indispensableness of covil will for the most part maintain that there is no saving grace in koumis proceeding from aught but the milk of thorough-bred Tartar mares.

"There are koumis establishments in Russia elsewhere than at Samara. At Czarsko Selo, in the neighborhood of St. Petersburg, as well as in the Sokslniki environ of Moscow, there are similar establishments. At both these places, although the precious covil does not flourish, the Tartar-bred mare is alone in vogue. I visited both these establishments, but fell in love with neither. In the first place the neighborhood of a capital (and both St. Petersburg and Moscow are capitals) is an unfavorable citus for a 'cure.' The contrast of a medical establishment with the surrounding associations is fatal to it. All such establishments have a melancholy and depressing look about them. Phthisis, catarrh and tubercles seem written on every brick, and labelled on every bottle. I felt that I should have an attack of 'nerves' if I stayed there ten minutes, and that all the Tartar mares in Russia could not restore me. If you are unlucky enough to require a 'cure,' go bury yourself alive as far from the habitations of men as you can; flee from the very neighborhood of a city, far more a capital. Consider that situation the best which offers you the fewest resources, otherwise your labor is likely to be in vain, and your 'cure' a mockery and a delusion. All these advantages, I may mention, are pre-eminently secured at Samara.

"Besides these establishments at St. Petersburg and Moscow, Dr. Stahlberg, formerly at the head of the Moscow establishment, has set up a similar one at Wiesbaden, maintaining that the covil is all humbug, and that it is 'the breed that does it.' The sceptical analysis is carried still farther; for in London there is a Russian (Polish) medical man, Dr. Yagielski, an authority in koumis, who goes so far counter to the received notions on the subject as to deny not only the indispensableness of Tartar mares for the production of koumis, but even of mares at all, actually giving the preference (tell it not in Gath and whisper it not in Samara) to the domestic cow. But I must leave the cow-produced koumis to its fate, and proceed with my description of the genuine covil-fed Tartar-bred mare's milk, koumis. The process of manufacture is the following. I may mention that it is Bashkir girls who are generally employed to make it. It is their national beverage, and they best understand it. Being less wild, too, than the nomad Khirgis, it is easier to 'catch' this particular Tartar specimen.

"Koumis is fermented mare's milk. An element of fermentation is consequently required for its manufacture. This is supplied by

koumis itself. A certain proportion (one-third) of koumis is poured together with (two-thirds of) fresh mare's milk into a clean wooden vessel resembling an ordinary English churn, and there left for from six to eighteen hours, according to the degree of (alcoholic) strength that is required. During this period it is from time to time subjected to a churning process, with the object of keeping up and stimulating the process of fermentation. Herein consists the chief art, and whatever secret there may be in koumis-making is to know the exact amount of churning required; for, although a certain amount is requisite, it must be suspended at the point where curds or butter would be formed. Habit and practice alone teach this to the koumis-maker. After this fermenting process, stimulated by the occasional churning, has lasted a certain time, say six hours, a portion of the contents of the churn is drawn off, and this constitutes the weakest kind of koumis, say koumis of the first degree of strength. The remainder in the churn is subjected to a further period of similar fermentation and churning, say for another six hours, and then the churn is again tapped, and koumis of the second degree of strength is the result. Then another period of say six hours of a similar process for what still remains in the churn, and this, when drawn off, constitutes koumis of the third degree of strength. It will be observed that the difference in the degree of strength of the koumis consists in the different amount of fermentation to which it has been subjected. The strength of the koumis ought to be graduated according to the requirements of different patients, and this is a matter of some importance in the case of invalids. As soon as the koumis is drawn off it is poured into ordinary quart bottles, made with extra strong necks, corked down and tightly strung; for, containing as it does large quantities of carbonic acid gas, it is subjected to the explosive accidents of all such liquors. Indeed, the inexperienced koumis-drinker, on opening a bottle of koumis for the first time, if he is lucky enough not to lose his eye by the explosion of the cork, will most undoubtedly be soused all over by the frothing liquid.

"I have mentioned that the koumis itself is the fermenting element used in the composition of koumis—one-third koumis for two-thirds fresh mare's milk. It may be asked, when koumis is not obtainable (as at the beginning of the koumis season), what substitute is used? A couple of tablespoonfuls of yeast are put into an ordinary-sized quart bottle, filled with mare's milk which is allowed to ferment for

twenty-four hours. The contents of this bottle are then poured into double the quantity of frese mare's milk, and allowed to ferment for twenty-four hours more. Then twice the amount of fresh mare's milk is again added, the whole fermenting for twenty-four hours more. Thus a sufficient amount of the fermenting element is obtained to begin operations, the proportion 1 : 3 being always maintained between the fermenting element and the fresh milk. Some patients drink as much as six or eight bottles of koumis a day. Some subsist entirely on it; but, generally speaking, people eat their ordinary meals, and drink koumis between. It has a sharp and bitter taste, caused by the lactic acid, which it contains in large quantities; and the strongest sorts of all leave a kind of soft, buttery after-taste, which, however, the carbonic acid gas helps to dissipate. Some people never can get over their dislike to the taste of koumis, and those it is never likely to benefit. The complaints for which koumis is considered beneficial are consumption, and, it may be said generally, all affections of the mucous membrane. It is, of course, a mistake to suppose koumis a specific for consumption. It is nothing of the kind. People sometimes go to Samara in the last stages of that disease, when neither koumis nor anything else can be of avail. But in the early stages of consumption it often effects, by its strengthening properties, a beneficial change in the organism of the patient, and helps to arrest the ravages of the complaint. Where, however, it is of sovereign efficacy is in cases of recovery from a long and wasting illness where no organic detriment exists. Often, in such cases, after a couple of months of koumis-drinking the system is braced up, the blood streams more quickly through the veins, the pulsation increases, and a general feeling of *bien-être* pervades the whole man. Not that I feel inclined to attribute the whole benefit which is derived from a cure at Samara to the properties of koumis. The fine, dry, rarefied air of the steppes has undoubtedly something to do with it. The lungs are called into active play, and lend their assistance to the general recuperative process.

"You *feel* the dryness of the air at Samara. In the higher parts of the steppes there is no dew. The most delicate and consumptive patient can admire, with impunity, the beauties of the setting sun—and the sunsets are very beautiful at Samara. He is not obliged, as in Italy, to flee that treacherous hour: he can sit out of doors without risk, and watch that setting sun reflected on the Jigoulee hills

which here skirt the Volga, fringing with gold the clouds that crown the summits of those glowing hills, and lighting up the whole expanse of the river with liquid glittering fire. There is no fixed duration for a 'cure' at Samara. The average stay of patients is two months. but as koumis is rather a diet than a medicine, their stay is often prolonged beyond this period. The weather is the chief regulator in this respect. Fine hot weather is considered essential for a 'cure.' June. July and August are the finest months. The koumis establishments, of which there are three principal and several smaller ones at Samara, are situated at distances varying from six to twelve versts (four to eight miles) from the town, and are composed not of single blocks of buildings, but of little detached houses, mostly built of wood, containing from two to six, and rarely as many as eight rooms each, the whole connected with, that is, surrounding, a larger building, which is the kursaal of the little colony, or, where a kursaal does not exist, a central kitchen, which ministers to the culinary requirements of the whole. When there is a kursaal, the patients can either dine there at a *table d'hôte*, or separately in their own apartments.

"I have used the term 'colony' to describe these koumis establishments. It best depicts the effect which they produce on one at first sight. There, in the midst of the desert steppe, with few signs of human habitation around, you suddenly come upon a little wooden oasis, surrounded by a paling, and dotted about with a number of little single-storied wooden houses, resembling overgrown mushrooms, with zigzag walks or terraces cut in every direction, and queer-looking people, men and women, walking about—all drinkers at all watering-places are peripatetics—with a quart bottle in one hand and a large mug in the other, and you know that you are at a koumis establishment."—*Pharm. Journ. and Trans., October* 24, 1874.

AERATED WATER CONTAINING TRIBASIC PHOSPHATE OF LIME.*

By M. Chevrier.

Various considerations led the author to consider the tribasic phosphate of lime to be the best suited for administration where the use of phosphate is indicated. He therefore sought a solvent in which it could be administered without altering its composition. This he

*Abstracted from the *Répertoire de Pharmacie*, vol. ii, p. 455.

thinks he has found in carbonic acid. In fact, he has ascertained by experiment that the bone phosphate dissolves in carbonic acid, and that its solubility augments with the pressure. In order to effect the solution easily and rapidly, it is necessary to use the phosphate in the gelatinous form. On the other hand, however, as aërated waters strongly charged with carbonic acid have a special medicinal action, and might in certain cases be contra-indicated or badly supported by the patients, the author proposes not to exceed the proportion of gas which will dissolve in water under the ordinary pressure of the atmosphere. Under these conditions, a glass of gaseous water will dissolve and retain twenty-five centigrams of tribasic phosphate of lime, which would appear to be sufficient for a single dose that might be repeated several times a day.

The apparatus necessary for producing this gaseous phosphated water is very simple. Carbonic acid gas, produced in the usual way and well washed, is allowed to bubble into a milk of gelatinous phosphate of lime contained in a reservoir. After the passage of the gas for some hours the current is stopped, the excess of phosphate of lime is allowed to deposit, and the clear solution is decanted into bottles similar to those used for natural mineral waters.

The water so obtained is limpid, colorless, and inodorous, and has a subacid flavor. Exposed during several hours to the air, it loses a portion of its carbonic acid, and a pellicle forms on its surface. At a later period it becoms turbid. It is, therefore, important to keep bottles that are in use corked, and not to pour out the water long before drinking it.

The presence of basic phosphate of lime in this water may be easily recognized by the following reactions :—

(1.) The phosphated gaseous water is alkaline, a characteristic in which the author considers it differs from all the solutions and syrups hitherto recommended, they having a strong acid reaction.

(2.) Boiling, by driving off the gas, causes the precipitation of the basic phosphate.

(3.) Nitrate of silver gives a yellow precipitate of phosphate of silver.

(4.) Ammonia precipitates basic phosphate of lime.

(5.) Ammoniacal sulphate of magnesia causes a precipitate of ammonio-magnesian phosphate.

(6.) Both acetate of urania and molybdate of ammonia give the yellow precipitates characteristic of the phosphates.

The author states that he is convinced that the water, of which the preparation and properties are described above, really contains the tribasic phosphate without any mixture of other lime salts, and might be substituted advantageously for the syrups and solutions already in use. It mixes without decomposition with wine, beer and milk, and consequently can be administered with food—a condition eminently favorable for assimilation.—*Pharm. Journ. and Trans., Sept.* 19*th*, 1874.

NOTE ON JAPANESE OIL OF PEPPERMINT.

By John Moss, F. C. S.,
Late Demonstrator in the Laboratory of the Pharmaceutical Society.

At the last meeting of the Society, the opening meeting of the session, there was placed on the table a specimen of so-called crystallized oil of peppermint, this having been presented to the museum by Messrs. Cyriax & Farries. The specimen excited considerable interest, and did not seem to have been previously met with by those who examined it. I therefore thought it might be useful to ascertain what was known of the body, and, if it presented any points of interest, to place these before the Society. I may premise that the particular sample in question is part of a parcel which was received from Japan, in a cylindrical tin canister, along with a bottle of the liquid oil, a specimen of which is presented to the museum by Messrs. Corbyn & Co.

It appears that in 1862 a memoir on crystallized oil of peppermint, from Japan, was presented to the Chemical Society by Oppenheim.* This chemist speaks of the substance coming to this country in considerable quantity in earthenware jars, and of its being adulterated with sulphate of magnesium—to which it has a close resemblance in crystalline form—to the extent of 10 to 20 per cent. This is far from being the case now, for the result of many inquiries is to find that the body is almost unknown here (indeed, Mr. Hanbury is the only gentleman to whom I have applied who is at all acquainted with it;† and, so far from being adulterated with sulphate of magnesium, the specimen on the table, if not absolutely pure, is at least free from all impurities not derived from the original oil.

* Journ. Chem. Soc., xv, 24.

† Dr. Flückiger (Pharm. Journ. [3], ii, p. 321) speaks of solid *Japanese peppermint oil* having been met with in European trade during the past few years.

Oppenheim called the subject of his experiments, *camphor or stearopten of peppermint oil*, and also *menthol*. In Dr. Attfield's "Manual," peppermint camphor is styled, more systematically, I think, hydrous menthene, *menthene* ($C_{10}H_{18}$) being the hydrocarbon which is known to be common to several, if not all, varieties of peppermint oil. Oppenheim found that his camphor fused at 36° C., and boiled at 210° C.; that it was very slightly soluble in water, very soluble in alcohol, ether, bisulphide of carbon, fatty and essential oils, and in alcoholic solutions of the caustic alkalies—from the soda solution it crystallized in long needles. It was insoluble in aqueous alkalies. It liquefied in a current of hydrochloric acid or of sulphurous acid gas, resuming the solid crystalline character unchanged on exposure. From solution in strong acids it was separated by water as an oil, which soon solidified with properties unchanged. Having repeated these experiments, I have no hesitation in saying that the present specimen, if not the identical body examined by Oppenheim, is a physical isomer of it; for I find that it fuses at 39° C., re-solidifies at 37·5 C., and boils at 215° C. It should be stated, however, that the boiling point remained stationary for some seconds at 210° C., so that there is the probability of this specimen being a mixture of Oppenheim's camphor, with a more condensed body having higher fusing and boiling points. There may be a number of such isomers, for Dumas,* by exposing at 0° C. American oil of peppermint, which resembles the Japan oil in furnishing crystals at a relatively high temperature, obtained crystals which, when purified, fused at 25° C., and boiled at 208° C. In other characters they resemble the crystals from Japan oil. By exposing the liquid Japan oil to cold for some days (a great part of the time below 0° C.) I failed to obtain crystals. It is therefore probable that this oil has already yielded such as it is readily capable of doing. This is indeed what one might expect, for it is not easy to see the object of sending both crystals and liquid into the market, if the original product does not spontataneously deposit the former, and so give an inconvenient mixture of solid and liquid. Both Oppenheim and Dumas concur in ascribing the formula $C_{10}H_{20}O$ to the bodies they examined. Time, or the want of it, has not permitted me to verify this. The menthol from spearmint described by Gladstone† has the formula $C_{10}H_{14}O$. It boils at 225° C. Oppenheim considers, on very good grounds, that the body

* Gerhardt, "Traite de Chémie Organique," iv, 357.

† Journ. Chem. Soc., 24, 10.

from Japan oil is a monatomic alcohol, $\left.\begin{matrix}C_{10}H_{19}\\H\end{matrix}\right\}O$ *menthylic alcohol* or *hydrate of menthyl.*

In an experiment with liquid Japan oil it commenced boiling at 206° C., the temperature rose to 210° C., where it was stationary for some time, and finally reached to 218° C. This, therefore, is a mixture of two or more bodies; but as menthene, according to Oppenheim, boils at 163° C., this hydrocarbon does not enter into the mixture.

Crystallized *Chinese Oil of Peppermint* is mentioned in the work "Pharmacographia,"* recently issued by Mr. Hanbury in conjunction with Dr. Flückiger. It is there referred with reserve to *M. arvensis.* Oppenheim distinctly gives *M. piperita* as the source of camphor he examined, and he does not hint at a Chinese origin. It is stated in "Pharmacographia,"† that to distil *M. arvensis* with *M. piperita* ruins the flavor of the oil yielded by the latter plant. I consider this strong positive evidence that *M. arvensis* is not the source of Japan oil, for this oil is not greatly inferior to the best Mitcham oil in point of fragrance. If a demand for it were to arise in this country (by confectioners, etc.), there is little doubt that it could be supplied at a low price.‡—*Pharm. Journ. and Trans., Nov.* 7, 1874.

CURIOUS CONVERSION OF ALCOHOL INTO ACETATE OF ETHYL BY THE AGENCY OF CRYPTOGAMIC LIFE.

By F. M. Rimmington.

To those acquainted in any degree with the remarkable power of metamorphosis possessed by some of the microscopic cryptogami, this paper will be of interest. It may probably have been noticed by others that concentrated infusion of quassia is very prone to become beid, but the conversion of alcohol into acetic ether has probably not aeen before noticed. I assume, both from my own observation and the published experiments of Pouchet and Pasteur, that this transformation has been brought about by the agency of cryptogamic life in the fluid, whether that life was fungoid or otherwise.

My attention was recently drawn to a bottle of concentrated infusion of quassia that I had made myself some months ago, which smelt so strongly of acetate of ethyl that it was rather difficult to resist the belief that some had not been introduced. The fluid was quite clear and bright, without any sign of fermentation or other change going on. On pouring off the clear liquor, a very thin stratum of sediment appeared at the bottom of the bottle, looking very like mud.

The circumstance aroused in my mind an interest to know the explanation of this phenomenon, and the inquiry took the following

* p. 434. † p. 436.

‡ The crystallized oil of peppermint and of thyme were exhibited by Messrs. Sachse & Co., of Leipzig, at the meeting of the American Pharmaceutical Association, held in St. Louis, 1874.

shape: Lignum quassiæ has often a fusty smell and a corresponding taste; this I attributed to the presence of some form of fungus growth —and most probably the fungus is a penicillium—and, assuming this to be so, the probability is that some of the spores have got into the fluid, and have been slowly and silently effecting the conversion of the alcohol into acetate of ethyl. It is this fact which constitutes the point of interest, for if the alcohol had only become changed into acetic acid, the presence of fungi or anything else would not have been necessary, but the change is of a more complex and delicate character. The amount of acetic acid present is only small, and much diluted, but the odor of the ether is powerful. The next point was to prove the theory I had set up, and I proceeded to examine the sediment microscopically. With a one-fifth objective it looked like granular amorphous matter, mere points, without structure. But sufficient was shown to determine that it was not inert matter, and, on submitting it to the amplifying power of 800 or 900, its nature was clearly and beautifully displayed; it was made up entirely of unicellular organisms, of a somewhat irregular roundish form, about one-third the size of a yeast cell, and having, like that, one or more nuclei. Besides these cells, were a considerable number of bacteria. or vibrios.

To mycologists there is another point of interest I will mention; these exceedingly minute bodies, when viewed by reflected light, look opaque, and of a *drab or grey color*, and are not globular, but flattened on two sides. These flattened sides have raised edges and slightly raised centres, something like the top of a pork pie.

August, 1874.

—*Pharm. Journ. and Trans.* [*Lond.*], *Sept.* 12, 1874.

Varieties.

Determination of the Freezing-Point for Delicate Thermometers—Dr. G. Krebs.—Schultz in his treatise on the freezing-point of the water of gaseous solutions and the regelation of ice, shows that the freezing point of water is lowered by dissolving gases, the change being nearly proportional to the amount of gas dissolved. That water holding solids in solution freezes at a lower point is well known. Thomson and Clausius have shown from the principles of the mechanical theory of heat that the freezing-point of water falls 0·007° C. for every additional atmosphere of pressure. To determine the true freezing point, take a glass tube closed at one end, 20 centimetres long, and 2 wide, fill it almost full with sulphuric acid, and heat. Then pour out the acid, and rinse repeatedly with pure distilled water. The tube is then two-thirds filled with distilled water, which has been boiled for some time in a clean beaker, and a small quantity of filtered oil of turpentine (about one centimetre in depth) is poured upon the water. The tube is then carefully heated

in the oil-bath, without allowing the temperature to rise to the boiling-point lest an explosion should ensue. The object of the heating is to remove any air bubbles which may adhere to the side of the glass, or may remain between the turpentine and the water. When the water has been thus exposed for a considerable time to a temperature very near to the boiling-point, the tube is taken out of the oil-bath, cooled in cold water, and then placed in a freezing mixture (water and nitrate of ammonia). After a few minutes the water is cold, and in most cases a portion of it freezes at once if a thermometer is inserted, and moved up and down. If this does not take place, the tube must be returned to the freezing mixture, and cooled more strongly. The thermometer may be previously placed in an empty test-tube, which is then plunged in the freezing mixture. It is very important that the thermometer should be cooled down close to the freezing-point before being introduced into the water. The best thermometers when tested in this manner show a freezing-point too high by about 0·1° C.—*Repertorium für Experimental Physik*, Band x, *from Chem. News, October* 16, 1874.

Impermeable Paper.—By plunging a sheet of paper into an ammoniacla solution of copper for an instant, then passing it between the cylinders and drying it, it is rendered entirely impermeable to water, and may even be boiled without disintegrating. Two, three, or any number of sheets thus rolled together become permanently adherent, and form a material having the strength of wood. By the interposition of cloth or of any kind of fibre between the layers, the strength is vastly increased.—*Journ. Frank. Inst., Aug.*, 1874.

Cod-Liver Oil.—In a recent letter describing the fisheries about Newfoundland, it is estimated that the total catch of cod along the coast is not less than 1,650,000 quintals, and the quantity of oil extracted from their livers one and a quarter million gallons, valued at about £200,000. Nearly all of this oil, it is added, is shipped to England, the duty in the United States being so high at present as to almost prohibit its importation, otherwise much more of it, if not all, would go to that market.—*Lond. Pharm. Jour., Nov.* 7., *p.* 368.

Pharmacies in Paris.—The *Lancet* states that, according to the census recently published by the Prefecture of the Seine, there are in the city of Paris 618 pharmaceutical establishments, and 298 in the suburbs.—*Ibid.*

Minutes of the Pharmaceutical Meeting.

The second meeting of the session was held November 17th, 1874, Prof. Remington in the chair. Number in attendance, thirty-one. The minutes of the previous meeting were read and approved.

Prof. Maisch presented, for the cabinet, from W. F. Simes & Co., an empty tub, with its original covering, in which Japanese tub-camphor is imported.

Mr. Simes exhibited compressed camphor at the Franklin Institute Exhibition. It is prepared from Japanese crude camphor, the color of which is grey to pinkish-white, layers of various degrees of purity being often found in the same tub. It contains some water and volatile oil, but is not as impure as

Chinese camphor. To convert it into compressed camphor it is placed in a still and a moderate heat applied. The condenser is a large chamber, having projections so arranged as to lengthen the course of the vaporized camphor In the first partition the product is mostly in the pulverulent form; in the last it crystallizes in beautiful snow-flake-like crystals. It yet contains the water. and volatile oil on account of which the ordinary refined camphor is preferable for medical purposes. The crystalline powder is then placed in iron moulds, which are moistened with water to prevent the camphor from adhering, and by hydraulic pressure pressed into rectangular blocks of various weights. The iron rust of the moulds somewhat colors the exterior of this camphor, which is used to prevent the ravages of moths, and the object of this form is to prevent too rapid evaporation. Specimens illustrating the various stages of this process were exhibited by Professor Maisch.

Very handsome refined camphor is now produced in this city by Messrs. Kurlbaum & Co., also in New York. Refined camphor was formerly imported from Europe, where it is sublimed in glass spheres, which are broken to obtain the camphor. In this country the subliming vessels are of such a form as will allow of their being taken apart. The volatile oil contained in the crude camphor is also collected. Years ago camphor was refined in this city by the Messrs. Wetherill, also by John Farr. The changes in this industry have been owing to the tariff.

Prof. Remington remarked that the sublimed camphor, if free from moisture and volatile oil, might be used as powdered camphor, it being essentially the product recommended by John C. Lowd in the Proceedings of the American Pharmaceutical Association, 1871, page 441.

A. W. Miller, M. D., presented Feé-jee nux vomica, so called, and desired some information in regard to it.

Prof. Maisch stated they were the seeds of *Strychnos potatorum*, which were exhibited to the College in May, 1871. For accounts of them, see *Amer. Journ. Pharm.*, 1871, pp. 241, 281, 412 and 525.

Dr. Miller also showed oil of sassafras containing 14 per cent. of resin, which is left upon evaporation, and was probably added as oleo-resin.

R. V. Mattison presented pseudomorphic crystals of bicarbonate of sodium from the Pennsylvania Salt Company. The commercial article of this company is bolted and of very good quality, containing less carbonate than any other brand. It contains occasionally, but rarely, traces of alumina, and is to be preferred over the best imported brands. See *Amer. Journ Pharm.*, 1872, p. 41.

Dr. Miller, on behalf of Prof. Dr. Robert E. Rogers, extended an invitation to the faculty, members and students of this College to visit the new halls and cabinets of the Medical Department of the University of Pennsylvania, Thirty-sixth and Woodland avenue, also a special invitation to his lectures on chemistry, which are held on Tuesday, Thursday and Friday, from 11 to 12 o'clock. Upon motion, the Registrar was directed to convey to Prof. Dr. Rogers our warmest thanks for his kind invitation.

Prof. Maisch exhibited American asbestos in its natural state as found in this country, also the same purified, both being in very long fibres. The puri-

fying process, which is patented, is based upon the use of acid, and afterwards forcing steam through the fibres, which are thus cleaned and preserved unbroken. It is intended to be used for filters, and fire-proof articles of small size.

Prof. Remington had seen it applied in the manufacture of a small spirit stove. This stove heats quickly, and is convenient for travellers.

R. V. Mattison said it was used for making fire-proof paper by a company in this city, but as yet this paper was not in the market.

Prof. Remington exhibited and described a percolator stand made by D. Benjamin, Esq., Camden, N. J. It is not patented, and the inventor offers it as an effort to assist the apothecary who desires to prepare his galenical preparations. It is difficult to explain the many advantages of this stand, but practical use in the laboratory will show its conveniences. It will hold any size of percolator from half a pint to sixteen gallons with perfect ease and firmness, by means of the adjustable clamps at the top. Several percolators and funnels can be used on it at the same time by means of the moveable folding shelves. There are two of these, which may be elevated or depressed, and held in perfect safety, and each has three folding parts; they can be adjusted to the height of any counter or stove, for holding condensers, receivers, funnels and dishes. It is constructed of wood, occupies but little space either when in use or not, is neat, ornamental and affords great protection to the apparatus in use; is not liable to wear or get out of order. In ordinary percolations or filtrations it covers the various sized instruments, excluding dust and preventing evaporation; especially convenient for self-feeding percolators. It is a very good press for small operations, the mass being enclosed in a bag, then screwed up in the clamps and allowed to drain.

On motion, the meeting adjourned.

William McIntyre, *Registrar*

Pharmaceutical Colleges and Associations.

St. Louis College of Pharmacy.—At the annual meeting held October 28th, the following officers were elected for the ensuing year: Chas. Habicht, President; J. M. Good, Vice-President; Chas. L. Lips, Treasurer; E. P. Walsh, Secretary, and C. K. Jones, Charles Bang, W. H. Crawford, F. X. Crawley and William R. Grant, Trustees.

The Faculty continues as last year, with Theodore Fay, M. D., Professor of Chemistry and Dean of the Faculty; Otto A. Wall, M. D., Professor of Materia Medica, and Hubert Primm, Ph. D., Professor of Pharmacy. The College has opened its winter session with a class of sixty-eight students, being an increase of twenty-six over last year. The following gentlemen constitute the Board of Pharmacy: Theodore Kalb, President; J. M. Good, Secretary; Charles Habicht, F. X. Crawley, M. W. Alexander.

The Board held semi-weekly meetings for the purpose of examination and registration of pharmacists, commencing Tuesday, August 4th, and ending Tuesday, October 2d, 1874. The whole number registered (being those who

by the law, were exempt from examination) was 174. The whole number examined was 72; of the latter, 16 failed to pass.

California College of Pharmacy.—At the Second Annual Meeting, held November 4th, the following officers were elected: Wm. T. Wenzell, President; Wm. Geary, Treasurer; Emlen Painter, Secretary; John Calvert, Wm. M. Searby and G. G. Burnett, Trustees.

The second course of lectures, with twenty-four matriculants, commenced June 16th, and will close December 18th. The faculty consists of Wm. M Searby, Professor of Materia Medica; J. Calvert, Professor of Pharmacy; W. T. Wenzell, Professor of Chemistry, and H. Behr, Professor of Botany It is the intention to commence the third course of lectures in March next.

The Richmond Pharmaceutical Association held their first annual meeting on Monday night, November 9th.

The President (Mr. Blair) delivered his annual address, which was an interesting document, calculated to stimulate the members of the Association to greater energy in their efforts to carry forward the important aims of the Society.

The Secretary and Treasurer each presented their respective reports, which showed that the Association, although it had just completed the first year of its existence, is in a flourishing condition.

The following officers were elected for the ensuing year: President, Hugh Blair; First Vice-President, Robert W. Powers; Second Vice President, Jesse Child; Recording Secretary, Joseph Anthony; Corresponding Secretary, T. Roberts Baker; Treasurer, George L. Cary: Executive Committee William P. Poythress (chairman), Polk Miller and W. A. S. Conrad.

Washington Pharmaceutical Association.—At the annual meeting, held November 4th, the following officers were elected for the ensuing year: President, William T. Baldus; Vice-President, Jno. T. Cole; Recording Secretary Charles S. Price; Corresponding Secretary, John Z. Gibbs; Treasurer, Chas H. Warren; Register, R. H. M. Harrison.

Pharmaceutical Society of Great Britain.—At the Pharmaceutical Meeting held November 4th, Mr. T. H. Hills presiding, numerous donations of books and drugs were made. Mr. Thomas Greenish then read a paper on the chemical nomenclature of an International Pharmacopœia, in which it is stated that the opinions expressed at the Pharmaceutical Congress recently held at St. Petersburg, were in favor of the Latin language, the metrical system of weights and measures, the greatest simplicity in galenical preparations, the requirement of a fixed minimum percentage of active principles in narcotic and drastic drugs, and the fixing of the maximum of impurity allowable where absolute purity is not essential. For the chemical nomenclature the system of Berzelius had been recommended by some delegates: but this appears to have met with little favor, Professor Dragendorff, for instance, expressing

himself as agreeing in principle with the names as suggested by Prof. Attfield, and adopted in the U. S. Pharmacopœia.

Professor Attfield read a paper on the same subject, in which the chemical nomenclature of the modern pharmacopœias is briefly reviewed, and the adoption advocated of a nomenclature reflecting modern unitary ideas, and not the old binary or dualistic hypotheses; he likewise expresses himself in favor of the basylous constituent of the salt being placed first in the name. Speaking of the different systems in the chemical nomenclature of pharmacopœias, the following names are given as synonyms, all based upon the unitary system: Nitras potassicus, Nitras potassii, Nitras kalicus, Nitras kalii, Potassium nitricum, Kalium nitricum, Kalii nitras and Potassii nitras. For an International Pharmacopœia the author advocates for the heading the adoption of two systems of chemical names, to be placed alongside of each other as being of equal value, namely, the system adopted in the United States, and that of the Austrian (which to some extent is also that of the German) Pharmacopœia; thus. Ammonii chloridum *vel* Ammonium chloratum; Potassii acetas *vel* Kalium aceticum; Quiniæ sulphas *vel* Chinium sulphuricum, etc. A general alteration in the whole nomenclature is not believed to be acceptable to the general bodies of medical practitioners and pharmacists.

In the interesting discussion which followed, Professor Redwood expressed very similar views; Mr. Groves was in favor of the nomenclature of the German, Mr. Ince preferred that of the United States Pharmacopœia; Mr. Martindale spoke against the Berzelian nomenclature as headings, though he favored it as synonyms. Mr. Bland considered the discussion premature; but Mr. Sutton stated that the whole question of an International Pharmacopœia was open for discussion and would remain so for a long time, the Pharmaceutical Congress probably not meeting for four or five years.

Mr. Arthur W. Postans read a paper entitled "Suggestive Notes on the Pharmacy of Amorphous Phosphorus," in which this substance is recommended as preferable, at least from a pharmaceutical standpoint, to the administration of ordinary phosphorus in the usual way. During the discussion Prof. Redwood stated that an emulsion of phosphorated oil, made with yolk of egg, syrup and chloroform water, to which afterwards a little liquor potassæ is added, will keep for several months, and is a very elegant preparation. The phosphorus pill mass of the British Pharmacopœia, made by liquefying under hot water and mixing two grains of phosphorus with 120 grains of tolu balsam. and then incorporating 60 grains of yellow wax, will keep well under water, and if made into pills with some powdered soap, will afterwards readily disintegrate in water and consequently dissolve in the stomach.

Mr. Martindale prefers for a phosphorus pill a mass recommended by him in 1870, and which is made by dissolving phosphorus in cacao butter; this, by a skilful dispenser, may be easily rolled out into pills, which may be varnished, when they will keep unaltered, but still dissolve readily at a low melting point.

Pharmaceutical Society of Paris.—M. Regnauld presided at the meeting held October 7th. Amongst the contributions to the cabinet was a sample of

the leaves of *Jacaranda brasiliana*, Pers., which are used in Brazil, for their stimulant properties, under the name of Caroba.

M. Poggiale presented a paper by M. Gault, of Nancy, on the preparation of monobromated* camphor. The author's process† differs from that published in this Journal, 1872, p. 342, in the following particulars: A retort is used having ten times the capacity of the camphor bromide formed; powdered camphor is introduced, and then bromine in a thin stream until the camphor is all liquefied, weighing being considered unnecessary, since an excess of either material will not affect the final result; heat is applied by a water-bath, when a tumultuous extrication of gas takes place, consisting of hydrobromic acid and bromine. Raising the temperature to 132° C. is regarded as increasing the oily product. When the disengagement of gas ceases, the contents of the retort are thrown into water and boiled for some time in the open air to remove the remaining hydrobromic acid and bromine, the loss of monobromated camphor by volatilization being considered as insignificant when compared with the advantages of the first step of purification. The mass is now purified by repeated crystallization from stronger alcohol. Its melting point was found by Gault at 69° to 70° C., its congealing point lower. The oily product contained in the mother liquor, and adhering to the last crystallizations, is then heated to between 200° and 220° C., until a black viscous mass is formed, which is purified by crystallization from alcohol; by not raising the temperature to 260° C., the author believes to avoid the carbonization of a notable portion of the product.

M. Poggiale also presented a memoir on the action of solar light upon iodide of potassium, containing observations made by M. Vidau, a military pharmacist (pharmacien-major), stationed in Africa. The interesting results which are published in detail (*Journ. de Pharm. et de Chim.*, 1874, November, p. 349–354), may be summed up as follows: Solution of iodide of potassium and contained in paper (such as is usually used for ascertaining the presence of ozone in the air) is rapidly decomposed under the influence of sunlight, and under the most divers conditions, which, for paper saturated with starch and the iodide, was already pointed out by Cloez. Concentrated solutions appear to be more rapidly affected, becoming strongly alkaline as the decomposition proceeds, likewise solutions which have been previously acidulated. In determining ozone by starch and potassium iodide paper, or by the alkaline reaction produced, the influence of sunlight and its intensity cause serious errors, and the reactions obtained must be referred to both, and not merely to one of the causes indicated.

During the discussion which followed, M. Latour stated that iodide containing one per cent. carbonate of potassium acquires spontaneously a yellow color, three per cent. of the alkaline salt being required to keep the former unaltered.

* It is to be regretted that most medical journals in this country and elsewhere persist in erroneously calling this compound *monobromide of camphor*, which has the composition $C_{10}H_{16}OBr$. A few pharmaceutical journals use, likewise, this incorrect name, and M. Gault has called it *monobromure de camphre*, which was very properly corrected by M. Bourgoin to *camphre monobromé*. Its proper English name is *monobromated camphor*, it being a substitution compound of the formula $C_{10}H_{15}BrO$ (new notation).

† Published in *L'Union Pharmaceutique*, 1874, September, 266–269.

M. Bourgoin presented a note on two isomeric bodies, perbromide of acetylen and hydride of tetrabromated acetylen, the former of which is liquid, the latter solid.

Dr. C. Roucher, military pharmacist, read a note upon a new reaction of commercial oil of crisped mint (*Jour. de Pharm. et de Chim.*, November, 354). When about 20 per cent., by weight, of acetic acid, of 10° B. (sp. gr. 1·074), are added to one per cent. oil of mint, and the mixture is agitated, after a half to one hour a slight blue coloration is obtained, which gradually increases in intensity. With the darkening of the color, a very marked dichroism becomes perceptible, the color being blue in transmitted light and a fine vermillion red in reflected light, similar to that shown by some anilin compounds dissolved in alcohol. In the light, the color gradually changes to green and yellow. The liquid is instantly decolorized by potassa, but water produces a very light blue precipitate, which upon the filter becomes rapidly red, and finally decolorized. Neither menthol, oil of turpentine, camphor or oil of lemon produce a similar result.

M. Mehu read a note by M. Patrouillard on a false white ginger (see page 562). It may be remarked here, that this whitewashed ginger is extensively used in the United States.

M. Mehu made some remarks on the International Pharmaceutical Congress, and presented a specimen of *Artemisia cina*, the plant yielding the so-called Levant wormseed (Santonica, U. S. P.).

The German Apothecaries' Association held its Third Annual Meeting at Munich, September 10th and 11th. President, Dr. Schacht; Secretaries, Messrs. H. Mueller and Mack. The president read his annual report, showing the membership to be 2,715, and giving an account of the activity of the directory during the past year. The discussions were mainly confined to internal affairs of the society, to the condition, particularly the supervision of pharmacy in Germany, educational requirements, &c.

Prof. Buchner delivered a lecture on volatile oils, showing that the volatile oil of *Spiræa ulmaria* must be produced in the flower-buds by the oxydation of a salicyl compound, and that volatile oils may be generated by chemical decomposition.

Prof. Reichardt spoke on the fermentation of milk, and on gum agar-agar; also on the scientific representation of pharmacy at the German universities. Dr. Wolfrum, on the examination and preservation of medicinal substances, and Dr. Wilms, on the commercial so-called pomegranate root-bark, and the recognition of the trunk and branch-bark by means of the adhering apothecia of lichens, of which the author had recognized twelve species.

The Fourth Annual Meeting will be held at Hamburg.

The General Austrian Apothecaries' Association held its Thirteenth Annual Meeting at Vienna, September 20th to 22d, director Schiffner presiding, who read a very elaborate report on the activity of the society during the past year. Dr. von Waldheim gave a detailed account of the transactions of

the International Pharmaceutical Congress at St. Petersburg, after which the new constitution of the Association was discussed. The next annual meeting will again be held at Vienna.

Editorial Department.

To our Readers.—The appearance of the November number of our Journal was unavoidably delayed through the engraver, who, owing to an affection of the eye, was unable to finish, in due season, the portrait of the late Prof. Proctor, which was to accompany the memoir of him, who, for a period of twenty-three years, had been known to the readers of this Journal as its sole or assistant editor. This portrait has reached the hands of our readers; and while some who knew the deceased only during the last few years of his life may perhaps find it difficult to reconcile the picture with his appearance as *they* knew him, there are many others who have known him only as they find his features delineated in the picture. With few exceptions, those students of the Philadelphia College of Pharmacy, whose good fortune it has been to listen to his instructions, have known him only without the beard, during the period in which nearly all his scientific labors have been performed, and all who met him before 1867, will find the likeness not only faithfully, but artistically executed.

To meet the wishes of many, the Publication Committee have determined to print the portrait of the late Professor Procter upon large and heavy paper, suitable for framing; and those of his former pupils and friends, who are desirous of thus preserving his features, may obtain copies, at fifty cents each, by addressing, Mr. H. H. Wolle, the Business Editor of this Journal.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Pharmacographia. A history of the principal drugs of vegetable origin met with in Great Britain and British India. By Friedrich A. Flückiger, Phil. Dr., Professor in the University of Strassburg, and Daniel Hanbury, F.R.S., Fellow of the Linnæan and Chemical Societies of London. London: Macmillan & Co., 1874. 8vo, pp. 704.

A work of this kind has long been needed in the English language; that it has been written by the authors, is sufficient proof of its excellence.

The drugs are classified according to their botanical origin, and the natural orders arranged in accordance with the system of De Candolle. The Latin name, with the principal synonyms of each drug, is followed by their English, French and German names.

The section *Botanical Origin* enumerates the recognized botanical name, together with the synonyms, the habit and habitat of the plant yielding the drug; but botanical descriptions are, very properly, almost entirely excluded.

The section *History* is particularly interesting. It gives a historical account

of each drug from the time when it was first used, traces its employment by different nations, its influence upon commerce, its value at different periods, cultivation, name, &c.

This is followed by an account of the *Collection* of the drug, and its manufacture or preparation for the market, in all such cases where this information is likely to explain its physical properties, which are described under the section *Description*, and followed by the *Microscopical Structure*, paragraphs which are admirably written.

In the section *Chemical Composition* the sometimes conflicting views of different investigators have been carefully sifted, and in many instances their value has been decided by experiments performed by the authors. Processes for preparing the proximate constituents, their physical properties and chemical characters have been entirely excluded, or mentioned merely when of importance for the assaying of the drug.

Interesting and valuable statistics and other trade information are found in the division *Production and Commerce*, which is followed by an account of the *Uses*, giving in a few words the medicinal properties and economic uses.

The section *Adulteration*, wherever it occurs, is brief, and relates mostly to such substances which are either very frequently used for such a purpose, or which have not been observed by others. The surest way to detect adulterations, of whatever kind, is to be found in a perfect familiarity with all the leading characters of the pure article.

The head of *Substitutes*, which will be found to follow some drugs, enumerates and briefly describes such drugs as are occasionally used in place of the former, without being actually employed by way of adulteration.

From the foregoing brief resumé it will be seen that the authors have strictly confined themselves to the title of their work. It is neither botany, chemistry, therapeutics or pharmacy they proposed to treat of, but what in our colleges of pharmacy is called by the somewhat indefinite term of Materia Medica. As such, it is the only work of lasting value in our language, that we are acquainted with, and if we have to express any regret, it is that the plan of the authors excluded all drugs which find their origin in this country, and are not employed in Europe. But since the most important drugs are used medicinally in all civilized countries, the authors' *Pharmacographia* is a work of the utmost utility, likewise, to the American pharmacist and druggist, and as such we confidently recommend it to every one of our readers.

Nouveau Dictionnaire des Falsifications et des Altérations des Aliments, des Medicaments et de quelques Produits employés dans les Arts, l'Industrie et l'Economie Domestique. Par J. Léon Soubeiran, Professeur à l'Ecole Superieure de Pharmacie, de Montpellier. Avec 218 figures. Paris: J. B. Ballière et Fils, 1874. 8vo, pp. 634.

New Dictionary of the Falsifications and Alterations of the Alimentary and Medicinal Substances and of some Products used in the Arts, Industrial Pursuits and Domestic Economy. By Prof. J. Léon Soubeiran. With 218 illustrations.

The author justly considers everything a falsification, whether injurious or

not, which is intentionally added to another substance, and condemns the pretexts under which some of these practices occasionally seek justification, as untenable. Why should not the consumer improve the color or flavor to suit his individual taste? and does not the manufacturer look rather to his own gain than to the interests of the consumer? We heartily approve of these views, which, though they may be considered radical, are nevertheless correct, and merit the careful attention of all who knowingly deal in such "made up" articles. Accidental impurities, and such which occur in consequence of a faulty process in their preparation, are not regarded in the light of *falsifications.*

After giving a list of works published in different languages, with the view of aiding in the examination of drugs and other articles for impurities and sophistications, the various means, apparatus, reagents and processes are briefly described, and afterwards, in alphabetical order, the drugs and other substances, together with such impurities, additions and substitutions which have more or less frequently been observed. Whenever it has been deemed necessary, illustrations have been introduced, many of which, giving views under the microscope, have been selected from Hassall's well-known work on adulterations. The description of each article under consideration is given in a brief manner viewing mainly those characteristics which are requisite for determining the identity, and afford points of comparison useful in recognising foreign bodies; the latter are then described and the differences pointed out. In many cases a list of the most important publications is added, treating specially or in detail of the admixtures in question.

Throughout the work the author has availed himself of the literature on this special subject not only contained in works devoted to this object, but likewise to that which is scattered throughout the periodicals published in different languages; and wherever special processes or observations are cited, the name of their authors or observers is likewise given.

In an appendix, abstracts of laws of France, England, Belgium, Holland Germany, Switzerland and Italy are given, which have been enacted with the view of preventing or punishing such frauds.

The work is creditable to its author, showing extensive reading, close observation, and careful selection. The typographical portion is well executed, and most illustrations are clear, easily understood, and of direct value to the aim and object of the work.

Technological Dictionary in the English, German and French Languages, containing about 76,000 technical terms and locutions employed in arts, trades and industry in general. Edited by Alexander Tolhausen, Ph. D., M. A., Translator to the Great Seal Patent Office. Revised by Louis Tolhausen, French Consul at Leipzig. English-German-French. Leipzig Bernhard Tauchnitz. London: Sampson, Low, Marston, Low & Searle 1874. 12mo, pp. 848.

The first volume of this dictionary, which appeared nearly two years ago, was the French-German-English part; the third, or German-French-English, has been promised for the coming year.

It is a most valuable work, exhibiting a vast amount of research, and an

intimate acquaintance with the various industrial pursuits. In the "List of the chief works consulted," occupying three pages, the most important works of American, English, French and German origin are enumerated; and the list of arts and trades under the heading of Abbreviations, covers more than five pages.

The work is printed in three columns, in a small but very clear type, the three languages being distinguished by a different style of type to facilitate consultation; the technical terms specially employed are pointed out by an affix indicating the art or trade.

It is of especial interest to all those who read technical journals and works published in any of the three languages indicated upon the title.

Proceedings of the Fourth Annual Meeting of the New Jersey Pharmaceutical Association, held in Kepler Hall, Jersey City, Wednesday, February 11th, 1874. Newark, 1874. 8vo. pp. 79.

We have given an account of this meeting in our April number. The pamphlet before us contains the Proceedings in full, they having been reported phonographically by Mr. Jas. S. Munson, of New York.

The Medical Use of Alcohol; and Stimulants for Women. By James Edmunds, M. D., Member of the Royal College of Physicians, of London, &c. New York: National Temperance Society and Publication House, 1874. 12mo, pp. 96. Price, in cloth, 60 cents; in paper, 25 cents.

The three lectures published in this pamphlet contain the well-known arguments advanced in favor of total abstinence from alcoholic beverages.

OBITUARY.

Elie de Beaumont—his full name being, Jean Baptiste Armand Louis Léonce Elie—died September 21st, at Canon, Calvados, where he was born in 1798, Sept. 23d, having almost completed his 76th year. He was one of the most highly distinguished geologists of the present century—his favorite science being indebted to him for many investigations and observations of the utmost importance.

Carl Friedrich Meissner died at Basle, Switzerland, in May last, where, at the University, he had formerly labored as Professor of Botany. The deceased was well known as an active co-laborer of Martius, particularly on the "Flora Brasiliensis."

Wilson H. Pile, Jr., died last month in this city, at the age of 34 years. He had embraced pharmacy as a profession, and studied under his father Dr. W. H. Pile, with whom he was afterwards associated in business. He graduated at the Philadelphia College of Pharmacy in 1861, and his thesis "On cane sugar in its relations to simple and other syrups," was published on page 197 of the Journal for that year.

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TO VOL. XLVI (VOL. IV, FOURTH SERIES) OF THE AMERICAN JOURNAL OF PHARMACY.

American Journal of Pharmacy, 46, 1874.

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